ACTIVATING VS. RESETTING FUNCTIONAL CATEGORIES IN SLA: THE ACQUISITION OF AGR AND TNS IN ENGLISH BY SINHALESE FIRST LANGUAGE SPEAKERS.

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DECLARATION

I hereby declare that this thesis is my original work of my own execution and authorship.

Hemamala Ratwatte 5/5/95

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ABSTRACT

This study is concerned with the acquisition of Functional categories (FCs) in a second language: a FC that is not activated in the learners native language and a FC that is activated in the L1 but with parametrically variant properties. It focuses on the development and the knowledge representation at ultimate attainment of the two types of FCs in the ILG of native speakers of Sinhalese learning English as a second language. The FCs focused on are AGR(eement) and TNS (Tense). AGR is not instantiated in Sinhala, hence, it has to be 'activated' in the L2. TNS is activated in both languages but with parametrically variant values. It was predicted that learners carryover FCs common to the L1 and L2 together with their L1 properties. Hence, in the acquisition of English, these learners have to 'reset' the values to TNS.

A series of tests was carried out to determine the knowledge representation of AGR and TNS, in the developing grammars and at near-native level. Acceptability judgements were elicited from a cross-sectional sample of learners ranging from lower-intermediate to near-native and a control group of native speakers.

It was predicted that L2 learners have access to the 'Universal Grammar (UG) lexicon' and are therefore able to activate FCs not activated in the L1, and that they are also able to 'reset' values to FCs . It is assumed that the Principles of UG are universal and available to all learners. It was hypothesised that the availability of the UG lexicon will be reflected in the nature of the knowledge representation at ultimate attainment, i.e., whether the underlying competence is incomplete, divergent or complete. The study also compares the acquisition sequences of AGR and TNS in the interlanguage grammar. It is argued that the reassignment of values to FCs is more difficult than selecting a FC for the first time since this entails the disconfirmation of existing hypotheses. Therefore, that it would take longer to 'reset' values to FCs than to 'activate' new FCs.

The results show that native speakers of Sinhalese activate AGR in English L2, and that the judgements at near-native level are consistent and determinate. The judgements given by near-native speakers are different from those given by native speakers on some aspects of AGR. However, it is argued that the grammar has similarities with other natural language grammars, hence, that the representation of AGR is divergent [+UG]. The results also show that these learners change the L1 values to TNS and that the judgements are determinate and consistent at near-native level. But in this case too, some of the properties of TNS are represented differently in the non-native grammar. It is argued that aspects which are represented divergently in the L2 grammar are those which are misanalysed in early ILG due to the interaction between L1 parameters and misleading L2 input.

With regard to the development of the two FCs the results show that both have a three-stage developmental sequence. They also show that AGR is activated before the values to TNS are reset. In addition to the differences in the time sequences the results also show that the shape of the path of development of the two FCs are different. The development of AGR proceeds from no AGR , to an underspecified FP, followed by a fully specified AgrP with all of the properties of AGR appearing simultaneously in the ILG. The reassignment of values to TNS is more gradual and incremental, with values to the different aspects being reset at different stages. In the development of TNS, an initial fully specified TNSP with values similar to the L1 is followed by an underspecified TNSP. This is followed by a TNSP with values reassigned to those of the L2.

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Abbreviations

ACC	Accusative Case
ADV	Adverb
AGR	Agreement
ANOVA	Analysis of Variance
AP	Adjectival phrase
ASP	Aspect
COMP	COMP(lementizer)
DAT	Dative Case
DET	DET(erminer)
ESL	English as a Second Language
FC	Functional Category
FCs	Functional Categories
FPH	Functional Parameterisation Hypothesis
GEN	Genitive Case
HMC	Head movement constraint
IL	Interlanguage
ILG	Interlanguage Grammar
INSTR	Instrumental Case
L1	First language
L2	Second language
LCH	Lexical Clause Hypothesis
LF	Logical Form
LPH	Lexical Parameterisation Hypothesis
MU	Morphological Uniformity
MUP	Morphological Uniformity Parameter
N	Noun
NOM	Nominative Case
NP	Noun phrase
NPT	Non-past tense
P	Preposition
PAST	Past tense
PD	pro-drop
PF	Phonetic Form
PLD	Primary Language Data
PP	Prepositional phrase
SLA	Second Language Acquisition
SPEC	Specifier
TL	Target language
TNS	Tense
UG	Universal Grammar
UTAH	Uniformity of Theta Assignment Hypothesis
V	Verb
VP	Verb phrase
3ps.sg	third person, singular

Chapter One

INTRODUCTION

1.1 Goals

Some of the basic issues current second language acquisition research is concerned with are:

1. What is the end state of the second language (L2) grammar at ultimate attainment?
2. What assumptions do L2 learners bring to the task of learning a second language? and,
3. How does interlanguage (IL) development take place? What facilitates successful acquisition?

In this study we intend to investigate the acquisition of two Functional categories (FCs) in a second language: a FC that is not activated in the learner's native language and a FC that is activated in the first language (L1) but with parametrically variant properties. It is hoped that a study of this kind will yield insight into what near-native speakers know about the target language (i.e. their competence at ultimate attainment) and how they come to acquire this knowledge (that is, IL development).

The distinction between content/function or thematic/non-thematic grammatical categories is a topic which has a long tradition in the fields of linguistics (Fries 1952), language acquisition (Brown and Fraser 1963), and language processing (Kimball 1973). Lexical or thematic categories, Nouns, Verbs, Adjectives and Prepositions, are those which have a theta-grid while Functional or non-substantive categories, COMP, DET and INFL, are the categories which determine grammatical processes. Current thinking holds that functional categories play an important role in language variation (Fukui and Speas 1986, Chomsky 1988, 1991, Pollock 1989, Ouhalla 1991, Speas 1991).

According to the Principles and Parameters approach to language (Chomsky 1981a), Universal Grammar (UG) provides a small number of parameters which have a finite number of values. The combination of these parameters set to different values results in the array of possible natural grammars.

The Lexical Parameterisation Hypothesis (LPH) (Borer 1984, Wexler and Manzini 1987) associates parameters with individual lexical items. Wexler and Manzini (op.cit) working on binding theory found that governing categories, that is the configurations which include an anaphoric element and a possible antecedent, tend to differ from one lexical item to another, not only across languages but even within the same language. Two different lexical items from the same language may thus select different values of a possible parameter. This led Wexler and Manzini to propose that values of a parameter are not associated with the principles of UG (Chomsky 1986a) but with particular lexical items in a language. The LPH assumes that the principles of UG are invariant, that is, that they are not subject to parametric variation and therefore common to all natural languages, and that parametric variation is a result of differences in the properties of lexical items.

Although this hypothesis has interesting consequences in that a given language may instantiate more than one value of a given parameter in terms of different lexical items, it poses a problem for language acquisition for it seems to suggest that acquisition proceeds on an item-by-item basis. Despite the fact that the number of lexical items in a language is finite, it would appear that there are still a large number of parameter values which have to be 'set' before a child can acquire a particular language. This gives rise to a problem of undergeneralization (Safir 1987) by depriving the child of valid generalizations. In other words, LPH fails to provide an adequate explanation for the logical problem in first language acquisition where input underdetermines output. This has led to a refinement of the LPH by further constraining the locus of parametric variation to a particular class of lexical items, the functional categories. Chomsky proposes that,

> "If substantive elements (Verbs, Nouns etc.,) are drawn from an invariant universal vocabulary then only functional elements will be parameterised." (1988:2)

Accordingly, under the Functional Parameterisation Hypothesis (FPH) language variation is limited to the functional module or the 'UG Lexicon' with substantives and the principles of UG being invariant across languages. Parametric variation is confined to the idiosyncratic properties of FCs. Language variation occurs because all languages do not realise all of the possible functional categories (Iatridou 1990) and because the same functional category can have different values in different languages (Ouhalla 1991, Speas 1990a). A given adult language can therefore be characterised by its 'parameter settings' - in this case the choice of functional categories and the values assigned to them.

Since language variation is limited to the finite set of FCs, the FPH is able to account for how a child acquires her first language in a remarkably short period of time, for on exposure to a language, the child has to acquire only the properties of the FCs of the particular language, that is, the properties of the FC which are idiosyncratic to the language. Thus confinement of parametric variation to FCs solves the problem of undergeneralization (Safir 1987) discussed above, since the number of FCs is less than the number of lexical items of a given language.

Within this perspective then, given the universality of the lexical categories, the acquisition of a language, whether it be the first language or a second[1], entails the activation of the right functional categories and the assignment of appropriate values to these on the basis of input in the environment. Unlike the first language learner, however, the learner of a second language already has a knowledge of one language; consequently, she approaches the task of learning the second language with an already specified functional category system. Assuming that L2 learners "at least initially, carry over the (parameter) setting already established for the mother tongue"(White 1988:43), the task before the L2 learner can therefore be set out as follows:

If the learner's native language grammar does not instantiate a particular functional category FC_1 and the target language grammar does, then she has to *activate* FC_1 in the L2 grammar (i.e. assign values to new parameters). If the learner's native language grammar instantiates FC_1 with value V_a and the target language (TL) too instantiates FC_1 but with value V_b, then she has to *reset* the values for FC_1 from V_a to V_b (i.e. reassign values to existing parameters).

The starting point in L2 acquisition is therefore necessarily different from that of L1 acquisition. Learning a second language would require the learner, like her L1 counterpart, to instantiate some functional categories, but unlike her L1 counterpart, she may also have to change the values to other functional categories which already exist in the L1. This leads to the issues we investigate in this study:

a) Are L2 learners able to 'activate' functional categories not instantiated in their L1? and,

b) Are L2 learners able to 'reset' values to functional categories instantiated in the L1 when different values are assigned to them in the TL?

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[1] The term 'second' language is used to indicate non-primary language acquisition.

We hope to investigate how the two 'types' of functional categories, (a) and (b), develop in the interlanguage (IL). Whether there is a difference in the development of the two types of FC's, i.e., are the functional categories instantiated in the L1 carried over to the L2 or are both FC's activated in the L2 on the basis of input ? Does the fact that a FC is already instantiated in the L1 facilitate or impede its acquisition in the L2? What is the nature of the knowledge representation of the two FC's in the underlying grammar at ultimate attainment? That is to say, are L2 learners able to determine the values appropriate to the TL in the case of FC's that need activating and FC's that need resetting.

This leads us to the larger issue of whether L2 learners, like their L1 counterparts, have access to the parameterised aspects of UG or the Functional module. Opposing positions have been adopted with regard to the availability of the UG lexicon in non-primary language acquisition. The critical period hypothesis[2] claims that after a certain age the language module is no longer available. The maturational hypothesis, as formulated by Radford (1990), claims that the functional categories come 'on line' only at a particular stage in the child's linguistic maturation. It has been argued that if some aspects of UG are subject to the critical period, given the link between the functional module and maturation, the functional module may not be accessible in non-primary language acquisition (Tsimpli and Smith 1991, Tsimpli and Roussou 1991). On the other hand, those who subscribe to the continuity hypothesis (Hyams 1983, Pinker 1984) maintain that grammatical principles and grammatical categories are available from the outset in L1 acquisition. Therefore, by implication, there is no reason for the functional module to be inaccessible in L2 acquisition.

The picture presented on the availability of UG in second language acquisition in numerous studies which tap the L2 competence at the developmental levels (Bley-Vroman, Felix and Ioup 1988, Flynn 1988, Haegeman 1988, White 1988, Zobl 1990, 1991 Tsimpli and Smith 1991, Tsimpli and Roussou 1991) as well as at ultimate attainment (Coppietiers 1987, Birdsong 1992, Sorace 1992a, 1993a,b among others) is conflicting.

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[2] According to the Critical Period Hypothesis (Lenneberg 1967) the language faculty becomes unavailable after a particular age. Under the current formulation this would mean that UG is no longer available after a particular point of maturation. In a study examining maturational effects in L2 acquisition Johnson and Newport (1991) found that only those who learned English as a L2 under the age of 7 performed like native speakers. It was also found that the similarity of performance to native speakers' decreases with age leading Johnson and Newport to conclude that access to UG is subject to maturational effects.

> "On the one hand they show that ILG is underdetermined by the input, since L2 learners can and do acquire subtle and complex linguistic knowledge that goes beyond the evidence available to them. On the other hand, they provide indisputable evidence that many L2 learners fail to acquire grammatical properties that are not instantiated in their L1, or fail to re-set parameters after the initial, inappropriate adoption of the L1 setting." (Sorace 1993a:23)

The evidence from existing studies thus reveals that despite differences between L1 and L2 acquisition, second language speakers have linguistic knowledge regarding abstract grammatical properties of the target language, knowledge they could not have obtained from the input. This defies explanation if L2 learners have no access to UG. If it can be shown that L2 learners have access to aspects of the TL grammar they could not have come by via the L1 or the interaction of the TL input with general learning mechanisms, the claim that parameterised aspects of UG are available in non-primary language acquisition will be substantiated.

In addressing these questions, our subjects will be first language speakers of Sinhalese learning English as a second language. The language features we will focus on are AGR(eement) and TNS (Tense). AGR is a functional category not instantiated in the learners L1, hence has to be 'activated' in the L2. TNS is activated in both languages but with parametrically variant values hence in the acquisition of English learners have to 'reset' the values for TNS.

It is anticipated that a cross-sectional study of intuitional data elicited from Sinhalese learners of English ranging from lower- intermediate to near-native will yield insights into the changes in the ILG and the nature of the underlying grammar at ultimate attainment.

The acquisition of Functional projections in the L1 has been the focus of attention (Guilfoyle 1984, Guilfoyle and Noonan 1988, Radford 1990, Aldridge 1991), the study of the acquisition of functional categories in a second language is relatively new in research conducted within a generative framework. Further, although the nature of the underlying grammar of near-native speakers has been examined in second language acquisition research (Coppietiers 1987, Birdsong 1992, Sorace 1992, White and Genesee 1992), the mental representations near-native speakers have of FCs in the L2 has not been previously studied. In addition to examining near-native competence at ultimate attainment, this study also compares the 'activation' and 'resetting' of values for FCs in the developing grammar.

This thesis can therefore be defined as an investigation into the development and the mental representation at ultimate attainment of FCs in a second language, FC's that are not activated in the L1 and FC's that are activated in the L1 but with different properties. We hope that a study of this kind will lead to some insights into the nature of the knowledge representation of the L2 grammar at ultimate attainment and the nature of IL development: that is, how the learner organises the input and formulates hypotheses to arrive at the grammar appropriate to the target language.

Studying the parallel development of FCs in the grammar of the same learners has several advantages over the study of the development of FCs in the grammar of learners with different first language backgrounds. The comparison of the acquisition stages of the two functional categories is more legitimate since the development takes place in the same grammar. Further, unlike claims based on observations drawn from the ILG of learners with different L1 backgrounds, the claims based on observation of the same IL knowledge source regarding the representations both at ultimate attainment and interim stages are stronger. At a more practical level, to have the same informants take the tests relative to the two FCs at the same time under the same conditions eliminates any external factors caused by the test procedure which may influence the interpretation of the results of one of the functional categories and not the other.

Apart from the investigation of access to the UG lexicon in L2 acquisition, it is also hoped that this study will contribute to another area of research not given much focus. To my knowledge no principled research has been undertaken on the implications of linguistic theory on the acquisition of English as a second language by Sinhalese first language speakers. Although many studies have been carried out on the structure of Sinhala, only one (Wickramasuriya 1978) so far has focused on a contrastive analysis of English and Sinhala. Given the importance of English in Sri Lanka which we will discuss in Chapter Four, this is an area that needs to be investigated in depth.

1.2 Preview

In Chapter Two we examine the relationship between language acquisition and linguistic theory. The theoretical framework on which the current study is based is discussed here. We look at the ability of the Functional Parameterisation Hypothesis to meet the criteria of descriptive and explanatory adequacy, that is, its ability to account for language variation and language acquisition which is the goal of current linguistic theory. Since this study focuses on the acquisition of Functional Categories

we also examine the properties of FCs, properties which are shared by FCs as opposed to lexical categories and properties which lead to parametric variation between languages. We also look at the relevant invariant principles of UG.

In the third Chapter, which reviews existing research in second language acquisition, we explore the development of the ILG and the nature of the underlying competence at ultimate attainment. In accordance with the Functional Parameterisation Hypothesis we suggest that, in the acquisition of an L2, the learner has to arrive at FCs which are similar to that of the target language. Since the issue of the activation of Functional Categories is inextricably linked with the availability of UG, we also examine the positions adopted in second language acquisition (SLA) research on this issue. Based on the different positions, we suggest that there are differences in the way in which a Functional Category may be represented in the L2 grammar at ultimate attainment. We also look at the role of the L1 and the issue of learnability which it gives rise to. Primary language data and its function in L2 acquisition are also explored. The overview of the literature leads to the formulation of hypotheses on language acquisition.

The fourth Chapter is a contrastive analysis of English and Sinhala. The functional categories that are examined in this study, AGR and TNS, are taken to be generated within INFL (Pollock 1989), hence we examine the underlying structure of INFL in Sinhala and English with a view to identifying the areas that need restructuring in the second language grammar with the instantiation of AGR. Similarly, the parametric variation in the structure of the two languages resulting from differences in the values assigned to TNS is also investigated. This leads to the assumptions on linguistic theory from which the hypotheses tested are derived.

Based on the assumptions drawn from existing studies on second language acquisition and the outcome of the contrastive analysis, we set out the empirical hypotheses in Chapter Five. We also discuss the rationale for using acceptability judgements as a test instrument and ways in which the problems involved in using intuitional data can be countered. The experimental design and the types of measurement employed, the ordinal scale in the Rating task and the interval scale in the Magnitude scaling task, are also discussed in this chapter. This is followed by a report on the administration of the test, information on the subjects and the procedures adopted with regard to data analysis.

The ensuing three chapters are devoted to the presentation of the results. In Chapter Six we examine the basic statistics on the raw data to obtain an overview of the general trends in the data. In this chapter we also compare the two measurements, Rating and Magnitude Estimation, to validate the test instruments as well as the materials. A justification for reporting the results from only one of the tasks in the main body of the thesis is also offered. In chapters Seven and Eight we screen the data for the presence of AGR and TNS in the ILG. In the concluding chapter we discuss the findings and offer a post-hoc explanation for the data based on current developments in language acquisition theory. On the basis of these findings we draw our conclusions for the development of functional categories in an L2 and the knowledge representation at ultimate attainment.

Chapter Two

LINGUISTIC THEORY AND LANGUAGE ACQUISITION.

2.0 Introduction

Native speakers' linguistic competence goes far beyond the input received. This discrepancy between linguistic capacity and experiential evidence has led generative grammarians to propose that native speaker's linguistic competence stems from innate knowledge, that language is a genetic endowment of human beings. However, given the diversity of human languages, the innate capacity must be geared to all human languages, not just one. Thus, the central concern of modern linguistic theory has been to develop a model of grammar which would

> "..be compatible with the diversity of existing (and possible) grammars....[and which is] sufficiently constrained and restrictive in the options it permits so as to account for the fact that each of these grammars develops in the mind on the basis of quite limited evidence" (Chomsky 1981a:3)

A theory of grammar which can at once explain how the child acquires her native language in a remarkably short time and account for the diversity in human languages is conceptually attractive.

The Principles and Parameters model suggests that language is guided by a language- specific module or Universal Grammar (UG) consisting of a set of *principles* which are common to all languages and a finite number of *parameters*, each with a finite number of values along which languages vary. As the principles of UG are a part of the innate human endowment, they govern the structural and grammatical properties underlying all human languages. This accounts for the similarity in the essential properties of grammars common to all languages. Language variation on the other hand is accounted for by the existence of parameters, a set of language specific options made available within UG.

In this chapter we describe the theoretical framework from which this study is derived. We will first look at the finite parameters within which languages vary from one another, that is the Functional Categories and their parametrically variant properties, followed by the invariant underlying principles of UG.

2.1. Parameters and Language Variation

Since the principles of UG are innately specified in acquiring a particular grammar

> "..all the child has to 'learn' [would be] those grammatical properties which are subject to parametric variation across languages." (Radford 1990:5)

The parameters are said to have a finite number of open values and language variation results from different languages assigning different values to the parameters. Acquisition of a particular language takes place when the learner, in response to evidence from the linguistic environment, assigns values to each of the parameters. This in turn, according to the Principles and Parameters theory (PPT), yields the core grammar of the particular language being acquired. Thus guided by UG, children are able to achieve adult competence on the basis of positive language data alone, which 'trigger' the setting of the parameters to the values appropriate to the target language (Atkinson 1992). Furthermore, UG is also said to preclude the production of 'wild grammars' (Goodluck 1989) i.e. grammars that do not coincide with the rules of a natural language.

Thus parameters, while permitting variation, also constrain the possible variations across languages. In the development of linguistic theory, parameters have been associated with different aspects of grammar.

2.1.1. The Functional Parameterisation Hypothesis (FPH).

Earlier theories within PPT conceived of parameters as being associated with the principles of UG (Chomsky 1986a). According to this view, the selection of a specific value for a given parameter would yield a particular pattern of linguistic properties while the selection of a different value would result in a different pattern, thus predicting uniformity of behaviour in the elements that fall within the scope of the given parameter. For example, if the head parameter (X-bar theory) which specifies the order of the head category in relation to its complement is set to head-first as in English or head-last as in Sinhala or German, it implies that all head categories in English consistently take the complement to the right while all the complements in German would consistently be to the left of the head. However, in German and Dutch, verbs take their complements to the left (OV) while adpositions typically take their complements to the right (PO). This shows that there is variation in the

directionality of head-complement relation not only between languages but even within the same language.

The Lexical Parameterization Hypothesis (Borer 1984) overcomes this problem by proposing that values of a parameter are associated not with particular grammars but with the 'inflectional system' of languages. This proposal arises from the analysis of Case assignment to the object of the preposition in Hebrew and Lebanese Arabic. In both languages clitics are assumed to absorb the Case feature of the head they are attached to, so that in both Lebanese Arabic and Hebrew the object of the preposition is deprived of Case.

(1) Hkit ma? -O la Karim

talked-I with-him to Karim
'I talked with him to Karim.'

(2) *Dibarti 'im-a (le/s.el) Anna

talked-I with-her to/of Anna
'I talked with Anna.'

As seen from the above examples the sentence in Lebanese Arabic (2) is grammatical while the sentence in Hebrew (3) is not. Borer attributes this to a difference in the two languages in the insertion of a preposition as a 'saving device'. Lebanese Arabic permits the insertion of a preposition that assigns Case to the doubled noun phrase precluding the violation of the Case Filter, while Hebrew does not. Thus the 'presence vs. the absence of an inflectional rule.....', i.e., the rule which allows the insertion of a preposition accounts for the variation between the two languages with regard to doubling in prepositional phrases. An important corollary of Borer's proposal is the moving away from the association of parameters with the principles of UG to the association of parameters with individual lexical items as part of the information included in their lexical entries. The idea that parametric variation is associated with individual lexical items is further empirically substantiated across languages by Speas (1990a) who, on examining the structures of different languages such as Navajo, Malayalam, Hungarian etc., notes that the principles of UG remain invariant and that parametric variation can be explained in terms of lexical differences.

This theory has several explanatory advantages. By associating parameters with individual lexical items it is not only possible for the same functional category in different languages to instantiate different values, but it is also possible that different

functional elements within the same language can have different values. Wexler and Manzini (1987) illustrate, with examples from Icelandic and English, that the binding domains (governing categories) of categories differ inter-linguistically as well as intra-linguistically. The fact that a given language can instantiate more than one value of a given parameter, also explains the difference in the order of complements in relation to their selectors in German and Dutch. For example, the lexical entry for verbs in German would specify that complements occur to the left of the verb, i.e., head-last and the lexical entry for adpositions would specify that complements occur to the right, that is, head-first.

The the association of parameters with lexical items rather than with a whole language or grammar has consequences for acquisition,..."the consequences of setting a lexical parameter would not be as broad as in the case of a language-wide parameter. On the other hand the learnability problem (too) might be considerably less severe"(Wexler and Manzini 1987:47) for, once a parameter is set for a whole grammar it has extensive consequences throughout the language. The reduction of learning parametric values to the learning of lexical items has a further distinct advantage as

> ".. it places the learning of idiosyncrasies in just that part of the language faculty which we know is equipped to memorize.." (Speas 1990:126)

Chomsky sums up the consequences of LPH for acquisition in the following terms

> "..It has been suggested that parameters of UG do not relate to the computational system but only to the lexicon... if this proposal can be maintained in a natural form, there is only one human language apart from the lexicon, language acquisition is in essence a matter of determining lexical idiosyncrasies" (1989:44).

However, as discussed in the previous chapter, although limiting variation to lexical items also limits the scope for grammatical variation between languages, given the large number of lexical items in a language, the LPH gives rise to learnability problems. Therefore, Ouhalla (1991) expanding Borer's (1984) idea that parametric variation is associated with the 'inflectional system' proposes the Functional Parameterisation Hypothesis (FPH) where the set of lexical items with which parameters are associated are limited to the restricted class of inflectional/functional categories[1].

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[1] Ouhalla's proposal differs from Borer's in two ways. First 'inflectional system' is taken to be a set or list of inflectional or functional categories. Second, the information associated with functional

The association of parameters with functional categories overcomes the problem of learnability as there are only a finite number of inflectional or functional items in any language. Thus, by making the assumption that each of these is associated with only a finite number of parameter values the number of possible choices is constrained. Further, the association of parametric variation with a particular class of items accords with the modularity hypothesis. Chomskyan linguistics assumes that grammars of all languages comprise a series of inter-related components, called *modules*. For example the transformational module is concerned with the principles governing movement. Restricting parametric variation to the functional categories would therefore suggest that grammatical properties which are subject to parametric variation across languages are contained in the *functional module* (also known as the 'UG Lexicon').

In learning a language, therefore, it would be the parameterized properties of the functional categories that a learner will have to 'fix' on the basis of linguistic experience. This limits the potential diversity in language to a finite set of items.

Theoretically, FPH meets the conditions of descriptive and explanatory adequacy. It is restrictive enough to account for how a child arrives at a particular grammar, but also sufficiently open to allow for the range of possible human languages. As illustrated by Ouhalla (1991) with examples of functional categories from a wide range of languages, FPH also has explanatory depth for it is able to capture the properties of different constructions across languages.

2.1.2 Functional Categories

Radford (1990) identifies three major types of functional categories; C - Complementisers, D - Determiners and INFL - Inflection.

The properties of functional categories which make them the 'locus of parametric variation' between languages have been variously identified. For example, Borer's availability of inflectional rules (1984) (which were illustrated in 2.1.1), Pollock's - transparency of AGR (1989)[2] and Ouhalla's lexical properties (1991).

Prior to examining the idiosyncratic properties of FCs that result in parametrically variant grammars, we will consider the grammatical properties common to functional

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categories that determine parametric variation is assumed to be the selectional and grammatical features.

[2] These will be discussed in the contrastive analysis chapter, section 4.7.2

categories as opposed to substantives. Properties which apply to FCs across languages.

2.1.2.1 Functional Categories Vs. Substantives

The non-lexical or functional categories embody the grammatical rather than thematic relations in sentences. It is said that they

" 'lack'...descriptive content. Their semantic contribution is second order, regulating or contributing to the interpretation of their complement. They mark grammatical or relational features rather than pick out a class of objects." (Radford 1990:53)

As stated earlier, the primary difference is that functional categories unlike lexical categories are non-thematic elements, i.e. they do not assign theta roles.

Abney (1987) identifies further universal characteristics of functional categories which differentiate them from lexical categories. Lexical categories are 'open' and therefore have a large membership whereas Functional elements constitute a closed class (finite). This means while new words can be added on to Nouns (N), Verbs (V) etc., as in 'xeroxing', 'hoovering', such additions are not permitted to the COMP, INFL and Determiner categories.

Although there is cross-categorial structural symmetry in the way lexical (N,V, P) and functional heads (I, C, D) project into phrasal categories, there are distinctions between them as well. For instance, unlike lexical heads which permit multiple complements, functional elements permit only one complement: IP, VP or NP selected by COMP, INFL and DET respectively.

It is also argued that functional elements are usually inseparable from their complements. For example, as illustrated in (3) below, the head category I^{o} cannot be separated from its complement VP as lexical heads can be separated from their complements;

(3) John $[_{I}{}' [_{I}$ must] $[_{VP}$ write the letter]].

In addition to the above differences since functional items do not assign theta-roles to their specifiers, this position is left empty at D-structure and therefore can serve as a landing site for moved constituents (Radford 1990). In other words, the positions can be filled transformationally, for example by movement of the thematic subject to

[Spec, INFL]. It is also said (Fukui 1986, 1987) that only FCs can have specifiers that 'close off' the categories projection. Lexical categories project only up to a single bar level, hence are freely iterable.

Another difference noted between FCs and substantives is in Case assignment. Fukui and Speas (1986) point out that Lexical heads may govern and Case-mark into their complements (for ecample, Accusative Case assigned by the verb to the direct object), while a functional head may not. A functional head however, may assign structural Case to its specifier, for example Nominative Case assigned to the subject in [Spec, AgrP] by AGR and Genitive Case assigned by 's. Fukui and Speas use the term Kase to refer to both Case as assigned by Verbs and prepositions and Case assigned by functional categories. They also suggested that in English FCs assign Kase leftwards, a feature which distinguishses FCs from lexical categories. The property of assigning Kase leftward requires the movement of one of the categories base generated under V' (or N') to the specifier of the FC to receive Kase from the functional head. The movement of the argument base generated in [Spec, VP] to [Spec, AgrP] in English is an example of this.

Iatridou (1990) claims that unlike substantives which are common to all languages, of the possible functional categories in UG, languages can choose to instantiate different FCs. As head of S, the only functional category that is obligatory for all languages is INFL. But within INFL languages can choose from the available functional heads ; AGR(s), TNS, AGR(o), Causative, Benefactive, Politeness, Focus, Finiteness, etc.. Therefore, languages such as English, French and Italian choose to instantiate, for example, AGR while languages like Japanese, Chinese and Sinhala, do not. On the other hand, languages such Hungarian and Sinhala project Focus whereas English does not.

2.1.3 Parametrically Variant Properties of Functional Categories

Borer conceived of the idiosyncratic properties of FCs as stemming from the availability of particular inflectional rules.

> "..language specific variations are determined by the nature of inflectional rules and by their mode of application."(1984:137)

Borer attributes the variation between Lebanese Arabic and Hebrew in clitic doubling, discussed in examples (1) and (2) of this chapter, to the availability of the

inflectional rule which permits the insertion of a Case marking preposition as a saving device that leads to the variation between the two languages.

Expanding on this, other researchers have identified further parametrically variant properties of functional categories (Ouhalla 1991, Fukui and Speas 1986, Speas 1990, Speas 1993).

According to Ouhalla the idiosyncratic properties of functional categories that makes them "the locus of grammatical information which determine the structural representation of given constructions" (1991:8) are the familiar type of lexical properties such as selectional properties, categorial features etc. Properties which encode lexical information relating to grammatical features such as [+/-N] or [+/-V] and subcategorisation. By associating a finite class of items with a limited set of lexical properties the proposed model yields a grammar which is optimally simple. The lexical properties thus identified are:

C-selectional properties - (categorial selection)

M-selectional properties - (morphological selection)

Grammatical features - (phi features)

2.1.3.1 C-selectional Properties

As discussed previously (2.1.2.1), Functional categories unlike substantives are non-theta assignors, hence they do not possess a theta grid. However, Ouhalla suggests that FCs have subcategorisation frames or c-selectional properties. For example, to illustrate with a substantive, the categorial selection or c-selection for the verb 'hit' would indicate that it takes an NP complement[3]. Similarly the lexical entry of a given functional category too specifies the syntactic category of its complement. For example Ouhalla illustrates from Berber, a VSO language, that TNS c-selects AGR as a complement (4) while in SVO languages, for example Italian (5), AGR c-selects TNS.

[3] Chomsky (1986b) following Grimshaw (1979) and Pesetsky (1982) argues that for substantives, c-selection properties are redundant as the part of speech for each argument can be predicted based on the 'canonical structural realization' of the s-selected argument. For example a PATIENT argument is canonically realised as an NP.

(4) Ad-y-segh Moha ijn teddart

(TNS)-3ms(AGR)-buy Moha one house
'Moha will buy a house'. (Ouhalla 1991)

(5) Legge-va-no
read-imp(ASP/TNS)-3ps(AGR)
'They read'. (Belletti 1988)

In addition to the above, a given functional category may c-select a [+V] complement in one language and a [+N] complement in another language or, the same FC can select either a VP, TNSP or AgrP as its complement in different languages. The resulting derived order in the languages would be very different, for example, NEG in English c-selects a VP complement yielding the derived order; AGR+TNS+NEG+VP, whereas NEG in Berber takes AGR as a complement which results in NEG being outside AGR+TNS in the derived complex; NEG+AGR+TNS. Thus, the c-selectional properties of functional categories play a crucial role in determining the derived word order of constructions.

2.1.3.2 M-selectional properties

The second lexical property of FCs identified by Ouhalla is morphological selection.

According to Baker (1988) morphologically bound categories have morphological selection or m-selectional properties, i.e., the lexical entry of affixal categories specify the categorial nature of the item they can attach/adjoin to. Functional elements have been characterissed as being ".... phonologically and morphologically dependent. They are generally stressless, often clitics or affixes," [Radford 1990:53]. Since FC are dependent, i.e. bound, it follows that FCs will have m-selectional properties. Therefore, the lexical entry of an (affixal) FC will indicate the categorial nature of its host.

However, the overt manifestations of functional categories need not necessarily be bound morphemes attached to other categories. For example, according to the 'lexical-substantives', 'non-lexical- functional categories' analysis copula *be* and aspectual *have* are grouped together with main verbs. However, if the defining property of a lexical category is its ability to assign thematic roles, *be* and *have* fail to qualify because they lack the ability to assign thematic roles (Pollock 1989, Ouhalla 1990).

(6) The man *is* in the garden

Here the copula 'be' does not contribute to the overall meaning of the sentence but is inserted to carry the Tense and Agreement affix. The subject is assigned a thematic role by the prepositional phrase [PP] *in the garde*n via predication (Williams 1980). Accordingly, Ouhalla argues that copula '*be*' and aspectual *have* fall within FCs[4].

Thus the phonetic manifestation of FCs can be either bound (i.e. affixal) or free (be, have).

The m-selectional properties can be expanded to include whether the category in question is bound or free. Thus, the lexical entry of a functional category will indicate:

(7) i. whether the category in question is affixal or non-affixal.
ii. if affixal, the categorial nature of the element it can attach/adjoin to.

The bound or free nature of a given functional category too plays a crucial role in cross linguistic variation. Unattached affixes require movement of a head or the affix itself to satisfy the stray affix filter forcing a rearrangement of the grammatical relations between elements (Baker 1988). For example, the parametric variation in the order of constituents depending on whether a particular functional element is affixal or non-affixal can be illustrated from Berber and English. In Berber NEG is affixal, therefore it can be incorporated to the verb :

(8) ur-t y-u fa Moha
Neg-it 3ms-found Moha
'Moha did not find it' (Ouhalla 1991:61)

Whereas if it is non-affixal, as in English, it cannot be incorporated and therefore blocks the head-to-head movement of the verb as illustrated in (9)a and b.

(9) a. *John bought'nt the house
b. John did not buy the house

Parametric variation in word order also occurs when the categorial nature of the element the affix can attach to differs. This means a given element in language A could select a [+N] category while in language B it could select a [+V] category, thus

[4] Since the expletive verbal elements do not assign theta roles, they have been classified as functional categories. However, since they also lack c-selectional properties they form a subclass within functional categories (Ouhalla 1991).

resulting in similar affixes being attached to categorially different elements in languages A and B.

2.1.3.3 'Grammatical Features' of Functional Categories

Functional categories, too, like lexical categories are specified for grammatical features: a) 'phi' features

b) categorial features

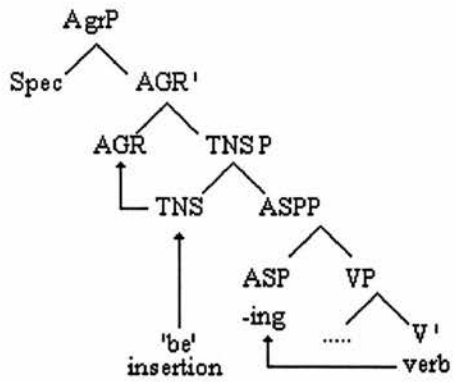
The 'phi' features identified by Chomsky (1981a) for example are the [person, number, and gender] associated with AGR and [past/future] associated with Tense.

Parametric variation results when different languages select different options. For example, (10) shows the options selected by AGR in English and French.

(10)	person	number	gender
English	+	+	-
French	+	+	+

FCs are also specified for categorial features; i.e. [+/-V] [+/- N]. It is stated that "these like other grammatical features play a crucial role in determining grammatical processes, in particular movement" (Ouhalla 1991:16). The categorial feature selected by a given FC in a language determines movement processes by either preventing its movement to another category or preventing the movement of another category to it. Even within the same language, different lexical items of a given category could select different categorial features. For instance, Ouhalla argues that the progressive ASP(ectual) *-ing* in English is [+N] while the perfect ASP *have* is [+V]. Since TNS m-selects a [+V] category, this results in *have* being marked for TNS while [V+ing] is not since it is [+N]. Therefore, in sentences with [V+ing] an expletive verb '*be*' has to be brought in to carry the TNS and AGR inflections as in (11) and (12).

(11)



(12) John is reading the book.

2.1.3.4 'Kase' Features

Fukui and Speas (1986) propose that certain elements within COMP, INFL, and DET assign F-features or Function features and certain other elements do not, for example, AGR [+TNS] in INFL assigns Nominative Case while 'to' the [-TNS] marker does not. Following Szabolci (1986) they use the term 'Kase features' to refer to both the inflectional features assigned by functional categories and the Case features assigned by both lexical and functional categories.

Fukui and Speas (op.cit.) suggest that a Spec position of a functional head can appear only when Kase is assigned to that position, otherwise the projection stops at a single bar. In other words, it is Kase that licenses the [Spec, AgrP] position. Thus some FCs can have a F-feature while others do not, for example in English AGR projects a Specifier position but TNS does not. A FC can have only one specifier position, one which 'closes off' the categories projection. The restriction of a unique specifier position for a functional category is also attributed to Kase assignment. Since functional heads assign Kase leftward and only one XP can be left adjacent to a given functional head, only one XP can acquire the appropriate features. (Fukui and Speas 1986).

Speas (1991) goes on to say that the Kase features occur in grids and therefore must obey the Saturation Principle which holds that all positions in a grid must be discharged.

(13) Saturation Principle: "...each lexical item has a theta grid and all grid positions must be discharged in the syntax in order for the structure containing the lexical item to be well-formed". (Speas 1991: 65)

Fukui and Speas (1986) modify Higginbotham's (1985) Theta criterion to encompass theta grids as well as Kase grids:

(14) i. every position in a grid is discharged.
ii. If X discharges a position in a grid of Y, then it discharges only one.

Therefore, in order for a Kase grid to be saturated all its positions must be discharged.

The relationship between a functional head and the specifier to which is assigns Kase has been characterised as a 'biuniqueness condition on the relation of agreement' both[5] (Speas 1991:112). In fact Borer (1986) adopts the position that in English a syntactic specifier is obligatory because the agreement indexing between INFL and its specifier position is obligatory.

2.2.2.4 Summary

To summarise, FPH holds that substantives and their semantic and syntactic properties are universal and therefore not subject to parametric variation. The functional categories and their properties, on the other hand, though a part of UG, are subject to parametric variation. Therefore different languages can choose to instantiate different functional categories as well as choose to assign different values to their properties. The properties identified are categorial selection, morphological selection, grammatical features and Kase assignment. Thus, since parametric variation between languages is a result of the variation in the properties of functional categories, in learning a language a learner has to decide on the basis of the input,

a) the functional categories instantiated in the target language and

b) the properties assigned to the FCs instantiated.

In this way although in the proposed theory parametric variation is associated with individual lexical items (the FCs), the model does not give rise to learnability problems since the categories subject to parametric variation are restricted (as opposed to the

[5] The relationship between a Functional head and its Specifer or Spec-head agreement is discussed in detail in section 4.7.1.1

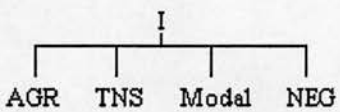
Lexical Parameterisation Hypothesis which implies that the child has to learn the parametrically variant properties of individual lexical items on an item-by-item basis) and the dimensions of variation too are restricted.

Since the focus of this study is the functional categories AGR and TNS, which are functional heads within INFL, we will in the next section look at the structure of INFL.

2.1.4 INFL

Under the generalized X-bar theory, I is considered to be the head of S. Therefore it is a category which is obligatory in all languages. According to the I-analysis (Chomsky 1986b) AGR, TNS, Modal and Negative elements among others are thought to be encoded within I as in (15).

(15)



However, several criticisms have been levelled against this analysis.

The I projection violates X-bar theory, first because all categories in all languages should have a common uniform underlying structure and second, because the multiheaded projection violates the endocentric constraint on categories and their projections (Chomsky 1988). In addition to this, the elements within INFL have different categorial features; Tense is [+V] whereas AGR is [+N]. Modals are also standardly assumed to be verbal. As pointed out by Picallo (1984), if generated within a single node this gives rise to a clash of features. The I-analysis also fails to account for the fact that in languages such as Arabic TNS and AGR elements appear attached to different head complexes. In Arabic (16) TNS is realised on the NEG element while AGR is attached to the verb.

(16)	T-tullabu	lam	ya-dhab-uu
	the-students	NEG-(TNS)	imp(AGR)-go-3p(AGR)
	'The students did not go'		(Benmamoun 1989)

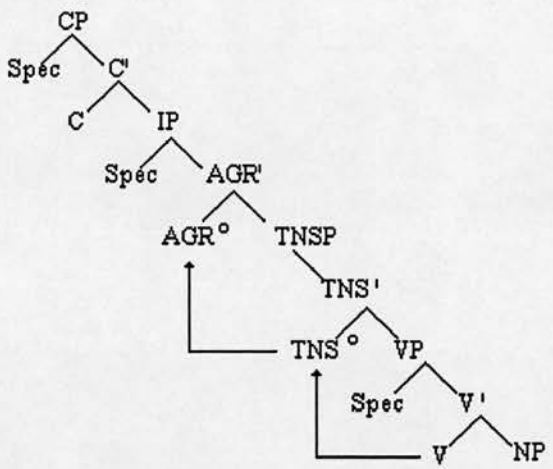
If all of the inflectional elements were base generated under a single node, it is to be expected that the elements would manifest in a single complex head (Ouhalla 1991).

The Split INFL hypothesis (Pollock 1989) on the other hand, overcomes the problems with the X-bar violations and the clash of features, and also accounts for the cross-linguistic variation in the order of inflectional elements.

2.1.4.1 The Split INFL Hypothesis

Based on the behaviour of finite and non-finite verbs in French, Pollock (1989) suggests that INFL could be split into two different categories AGR and TNS, each heading its own projection. Working within this framework Ouhalla (1990) proposes that, in addition to TNS and AGR, the other elements formally thought to be base generated within INFL, like MOD(al), NEG(ation), ASP(ect) etc.. too are independent functional heads which have autonomous projections as in (17).

(17)



The inflectional items are incorporated by head-adjunction through the cyclic movement of the verb[6]. It is the Stray Affix Filter which motivates the verb movement (Baker 1988). Given that the Head Movement Constraint[7] prevents affix lowering, it follows that the verb in acquiring the infections moves upward along the tree (17) (provided there is no element to block movement) until all inflections are incorporated. This is referred to as head-to-head movement.

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[6] Under the I-analysis the merger between the verb and the inflectional elements within I are thought to take place as a result of V-movement to I or I-lowering to V, depending on language specific properties.

[7] The Head Movement Constraint will be discussed in section 2.2.2.2. E of this chapter.

Pollock (1989) and Chomsky (1989) suggest that the elements encoded within I behave like independent syntactic categories with respect to certain grammatical processes. The criteria or grammatical processes used to judge whether a certain category is an independent functional head are (a) the ability to block the movement of other head categories (for under HMC only a head category can block the movement of another head category) and (b) the ability to host a moved argument. Using the above criteria Ouhalla (1991) illustrates with empirical data from languages as different as Berber, Arabic, Italian, Chichewa and English that all of the above categories TNS, AGR, ASP, PAS(sive) etc., behave as independent syntactic categories.

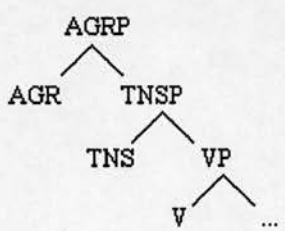
The order in which the inflectional elements are incorporated to the verb mirrors the surface arrangement of the affixes in accordance with the *Mirror Principle*: (Baker 1985):

(18) The Mirror Principle: Morphological derivations must directly reflect syntactic derivations (and vice versa).

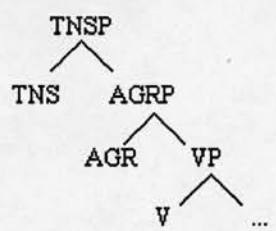
Therefore, given the Head Movement Constraint, in a language where the verbal complex is [V+TNS+AGR] the syntactic process which attaches TNS to the verb applies prior to that which attaches AGR as in (19)a. On the other hand in a language where the verbal inflections take the form [V+AGR+TNS] the underlying structure will resemble that of (19)b.

(19)

a. [V+TNS+AGR]



b. [V+AGR+TNS]



As noted in the section discussing C-selectional properties of FCs (2.1.3.1) the differences in the hierarchical order of elements is attributed to the parametric variation in the c-selectional properties of the functional heads. Therefore in (19)a AGR c-selects TNS and in (19)b TNS c-selects AGR.

In this study we adopt the Split - INFL hypotheses. However, IP will still be considered the head of S, hence obligatory in all clauses other than small clauses across languages. Further, in keeping with the convention '[Spec, INFL]' will be used to refer to the specifier position of the highest maximal projection.

With regard to the functional projections within INFL, the particular functional heads a given language chooses to instantiate will vary. Iatridou (1990) posits that in order to claim that a particular functional category is instantiated in a particular language evidence will have to be found in each language separately. Tait and Cann (1990) too propose that to claim that a certain element is present in a given language, that element must be phonologically licensed, i.e. have overt manifestations.

2.2 The Principles of UG

According to the Principles and Parameters theory the mapping between form and meaning involves four levels of representations: D-structure, S-structure, Phonetic Form (PF) and Logical Form (LF). The four levels of representation are related through the general rule '*Move* α '. This rule dictates that syntactic categories can be added or deleted or moved out of their D-structure positions leaving an empty category or trace behind in the original position, as long as the licensing conditions which hold at the different levels are met. The licensing conditions or the principles of UG are invariant and common to all languages.

The modularity hypotheses (Chomsky 1986a) claims that the grammars of all languages comprise a set of inter-related components, with each module dealing with a specific aspect of the linguistic properties of grammars; for example the 'transformational' module is concerned with the principles governing movement while the 'Case' module is concerned with the principles governing Case marking. As the principles of the various modules are expected to hold across constructions the modular theory minimises the number of individual rules. For example the principle of X-bar theory is able to explain the internal structure of all categories.

In this section we will be looking at the different modules within UG. First we will consider the lexicon and the type of information contained in the lexicon. Next, we will see how the principles of UG constrain the mapping of the information in the lexicon to the syntax.

2.2.1 The Lexicon

The lexicon is the module which contains a list of all the words and affixes in a given language. The surface grammar of a language is said to evolve from the interaction between the lexicon and the principles of UG, with the D-structure being the level at which the lexical information contained in the lexicon is mapped onto the syntax. Recent investigations into the properties of lexical items have led to the postulation that syntactic information, formally thought to be stated in the syntactic component of the grammar, are in fact redundant with the lexical information contained in the lexicon (Speas 1990a). The lexical information associated with each of the entries are:

(20) a. a phonological representation

b. semantic information

c. syntactic information

d. morphological information.

2.2.2 The Principles of UG and the Levels of Representation

Since the focus of interest in this study is AGR and TNS which involves the head-to-head movement of the verb, we will only consider the principles in UG which constrain the VP and verb movement. We will first look at principles that apply at D-structure followed by those that apply at S-structure, LF and PF.

The modules to which the VP should conform at the different levels are

A. X-bar theory,
B. Theta theory,
C. Projection principle,
D. Case theory and visibility mechanisms,
E. Government and proper government,
F. Movement theory.

2.2.2.1 The D-structure

The D-structure is considered to be a 'pure' structural instantiation of the thematic properties of lexical items (Chomsky 1981a). As such, according to Speas (1990a) in

order to be well formed the D-structure must be licensed by a formal condition as well as by a semantic condition.

> "the formal condition is that it conform to the principles of X-bar theory... the semantic conditions is that it be a 'pure' representation of theta structure.." (Chomsky 1986a:100)

A. Generalised X-bar Theory

X -bar theory was originally proposed to capture the cross categorial structural symmetry of phrases belonging to lexical categories. Subsequently it was extended by Chomsky (1986b) to incorporate the phrase structure of functional categories as well.

Principles and Parameters theory assumes that all syntactic constructions are headed and that they are hierarchically organised. According to X-bar theory in building sentences all major categories, lexical i.e. N, V, P, A, can be expanded into corresponding phrasal categories by utilising a general schema which specifies the hierarchical structure holding between heads of phrases and their specifiers and complements.

(21) a. X' = X XP*

b. XP = XP* X'

Thus, instead of expanding each of the categories as

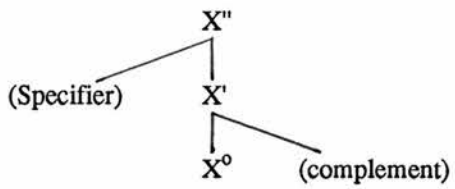
(22) $[_{N''}$ a $[_{N'}[_{N}$ student] of physics]] or $[_{V''}$ be $[_{V'}[_{V}$ thinking] of her]] (Radford 1988:228)

by using the category variable X for the head, X-bar theory captures the broad structural symmetry across categories.

The adding of complements to the head category - X^{o}, yields a single bar projection - X' (**21**)a. The single-bar phrase can be expanded to a maximum or double-bar projection by the addition of a Specifier/ Determiner (21)b. Specifiers and complements are optional. The head parameter or the order of XP in relation to X is subject to cross linguistic variation; in some languages complements precede their heads e.g. [OV] Sinhala, while in others they follow e.g. [VO] English.

The X- bar schema can be illustrated using a tree diagram for right branching languages in the following manner.

(23)



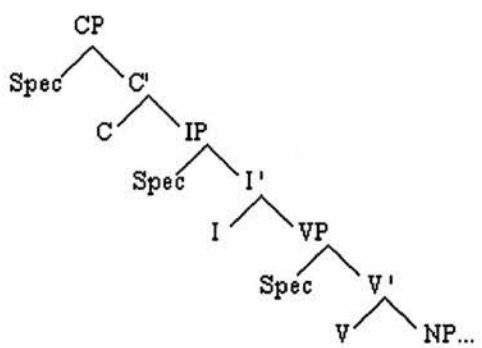
The Specifier and the Complement are maximal projections. Both the Specifier which is the 'external' position and the Complement which is the 'internal' can be understood in relation to the X' projection. Phrase markers in all natural languages are assumed to be binary branching (Kayne 1983).

In bringing functional categories i.e. Det(erminers), INFL, and COMP in line with the single and double bar projections INFL or I, is taken as the head of S (Chomsky 1986b). I is projected to I' by the addition of a VP complement; the resulting I' is in turn projected in I" or [IP] by the addition of a Specifier. The IP is equated with S.

(24) $[_{IP}$ He $[_{I'}$ $[_{I}$ would] $[_{VP}$ resign from his post]]]

As a result of extending the schemata to I and C the structure of a clause takes the form:

(25)



B. Theta Theory

Theta theory is the semantic condition which licenses the projection of thematic information in the lexical entry at D-structure. The semantic information that is of relevance in the lexical entry to the projection of a hierarchical structure are the theta

roles which a predicate assigns to each of its arguments: AGENT, EXPERIENCER, THEME, INSTRUMENT, etc. Higginbotham (1985) postulates that all lexical categories have a theta grid as part of its lexical entry. For example the theta grid of the verb 'hit' contains the information that it assigns an AGENT theta role and a THEME theta role which are projected onto the syntax at D-structure as the external and internal arguments respectively. Thus the thematic roles are borne by arguments in relation to a predicate.

It is stipulated that in order to be licensed, every position in the theta grid of the predicate must be instantiated in the syntax. Therefore a head continues to project until all of the positions in its theta grid have been discharged. The head has a theta grid whose positions must be discharged while the complement has a theta grid which needs to be saturated. Therefore, in order to be licensed all NP's in a sentence (except pleonastic 'it' and 'there') need a theta role.

The requirement that each thematic role of a predicate must be assigned and that there must be no NP's that lack a thematic role is summed up in the theta criterion which specifies that

(26) i. Each argument receives one and only one θ-role
ii. Each θ-role is assigned to one and only one argument.

thus ensuring that even when NP's undergo movement, the theta roles of the arguments are preserved, for example, in *John murdered the man* the thematic role of the patient *the man* does not change even if the function changes from grammatical subject to grammatical object in *The man was murdered*'.

Theta roles can be assigned only under government, i.e. a head must govern the phrases to which it assigns theta roles. In order to fulfil this condition it is necessary that all arguments which are directly assigned a theta role must be within a projection of the assigning head at D-structure so that there would be no barrier to government. This leads to the Lexical Clause Hypothesis.

C. Lexical Clause Hypothesis (LCH)

In order to satisfy the *Theta Role Assignment Condition* (TRAC) (Koopman and Sportiche 1987) that no phrase at all can intervene between an assignor and assignee.

Arising from this, the LCH holds that the thematic subject is base-generated in the specifier position (i.e. the external position) of VP and the thematic object in the complement of V position. This maintains a neat correspondence between the argument structure of a head and its X-bar projections, in the sense that the argument domain of a head corresponds, in structural terms, to its X-bar domain.

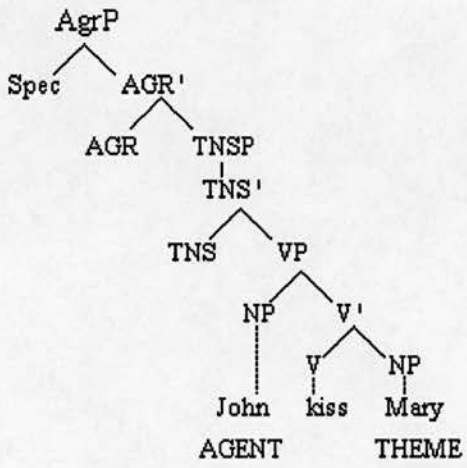
In addition to a syntactic representation of the theta grid of the VP, the D-structure also contains projections of the functional categories for although FCs have no theta grids, it is argued that the c-selectional properties indicate that they have argument grids (Speas 1990a:68). The presence of the argument grid ensures that functional heads too appear at D-structure. However, since only theta-positions appear at D-structure inside of X', the specifiers of FCs being theta-bar positions, are empty at D-structure.

To sum up therefore,

> "all categories which have s-selectional and c-selectional properties must be present at the D-structure level" (Ouhalla 1991:25).

Hence, the D-structure representation of a main clause in English according to the LCH would be:

(27)



At S-structure, which is the derived level, the thematic subject or external argument in languages such as English moves to the Spec of IP to receive Nominative Case as illustrated in (24). The theta criterion is satisfied in the case of moved arguments via chain formation. Therefore given that the theta criterion requires one-to-one correspondence between arguments and theta positions, it follows that movement is

possible only to non-theta positions. Hence, the Spec positions of the functional categories I and C which serve as landing sites for the moved subject NP must necessarily be non-theta positions. This confirms the assumption that functional categories unlike substantives are non-theta assigning elements. In addition to this Fukui and Speas (1986) state that the only 'truly empty' positions at D-structure are those licensed by Kase principles. This follows, for they serve as landing sites for NP's at S-structure. Thus theta assignment takes place at D-structure while Kase assignments takes place at S-structure.

In instances where the predicate assigns more than one theta role the hierarchical order in which the theta roles are projected on to the syntax is determined by the *Uniformity of Theta Assignment Hypotheses*. UTAH specifies that

> "Identical thematic relationships between items are represented by identical structural relationships between those items at the level of D-structure. " (Baker 1988:46)

The thematic relations between the theta roles in the grid are arranged according to a Thematic hierarchy[8] (28).

(28) Agent < Experiencer < Instrument < Object < Source < Goal < Location <Time (Fillmore 1968).

This means, in the projection of theta roles on to the syntax, the syntactic prominence of the arguments would correspond with that of the thematic hierarchy. Therefore, as the agent theta role occupies the highest position, if the verb assigns an agent theta role it would occupy the 'external' argument or specifier of VP at D-structure in accordance with the rule "if there is an Actor, it must be external for VP" (Williams 1981:87). Since it is also the subject, it would also be the argument selected for 'subjectivisation' i.e. movement to the Spec of IP.

[8] Different hierarchies have been proposed depending on the definition of prominence adopted. One position holds that roles which are more likely to show up as surface subjects are more prominent (Fillmore 1968, Belletti and Rizzi 1988), while another maintains that roles which are further away from the verb are more prominent (Jackendoff 1972).

2.2.2.2. S-structure and Logical Form (LF)

A. Case Theory and Visibility Hypotheses.

The Case Filter (Chomsky 1981a) states that

(29) *NP if NP has phonetic content and has no Case.

Thus all overt NP's appearing at PF must be assigned abstract Case. The Case filter derives from the visibility condition which stipulates

(30) An NP argument is visible for theta marking only if has Case. (Chomsky 1981a)

Therefore if at D-structure an NP occupies a position which does not receive Case, it follows that the NP must move to a Case marked position at S-structure. For instance in English the external argument of the verb moves from its D-structure position in [Spec, VP] to [Spec, IP] to receive structural Nominative Case from AGR. With regard to the relationship under which Nominative Case is assigned, Haegeman (1994) says it could be achieved via via Spec-head coindexation, as in English, or via government as in Dutch.

Case marking can be 'inherent' (Dative, Genitive, Direct, Locative...) or 'structural' (Nominative, Accusative). Lexical or inherent Case is a morphological realization of thematic role and is assigned at D-structure under the same conditions as theta marking. Structural Case on the other hand is assigned at S-structure and is independent of theta marking. It follows therefore that, Lexical Case is assigned under government by lexical categories while structural Case is assigned by functional categories and lexical categories. Speas (1990a) suggests that the lexical entry of a Case assignor contains the Case assigning properties in the form of a Kase grid and that in order to be well-formed Kase grids like theta grids must obey the saturation principle[9].

B. The Projection Principle:

The Projection principle specifies that 'lexical structure must be represented categorially at every syntactic level' (Chomsky 1986:84).

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[9] Saturation Principle: see section 2.1.3.4 of this chapter

By proposing that lexical information, i.e. c-selectional and s-selectional information be represented at every syntactic level - D-structure, S-structure and LF, the projection principle ensures that arguments, their thematic roles and categorial features are preserved through transformations at all levels.

Ouhalla (1991) proposes that the Projection Principle be extended to encompass the fact that not only must semantic and categorial features be represented at all levels but morphological properties too be represented at the relevant levels. He defines the Generalised Projection Principles as,

(31) i. the s-selectional and c-selectional properties must be satisfied at all syntactic levels,
ii. the m-selectional properties must be satisfied at S-structure level.

The projection principle also explains the presence of empty categories. The requirement that arguments be represented at all levels entails that while all arguments must be syntactically represented at D-structure, S-structure and LF, at PF an argument has either to be projected as a phonetically realized category or as an empty category. For example if 'murder' is lexically characterized as a transitive verb taking an AGENT subject and THEME object, if there is no overt element in one position, for example the object position, then there must be an empty category of the required type in that position as in (32).

(32) the man [John [$_{VP}$ murdered *e*].

The Projection principle and Theta criterion require that all theta assigning elements be present at D-structure. The Projection Principles also requires that c-selectional properties of functional categories be satisfied at D-structure. Therefore, only those functional categories which lack c-selectional properties can be inserted at post D-structure level. Expletives have neither s-selection nor c-selection properties. Therefore, they can be inserted at S-structure.

The expletive elements other than the nominals 'it' and 'there' which can be inserted at S-structure are the verbal elements 'copula 'be' and 'do' support. Since the predicate phrase i.e. the VP is the exclusive domain of thematic elements, i.e. theta assigning and theta receiving elements, expletive elements are excluded.

C. The Extended Projection Principle

This principle requires that in languages such as English all finite sentences have a lexical subject at S-structure. Unaccusative verbs[10] and raising verbs do not assign a theta role to the Spec position and therefore do not take an external argument. In such cases where there is no base generated external argument in the VP to raise to [Spec, IP], it is necessary to insert an expletive subject 'it' or 'there' ; to satisfy the EPP (33). For example,

(33) a. [NP_e] seems to me [that John is unhappy]
b. *It* seems to me that John is unhappy.

The Projection principle and theta criterion require that all theta assigning elements be present at D-structure. The Projection principle also requires that c-selectional properties of FCs be satisfied at D-structure. Therefore, only lexical items that have no c-selectional properties or theta roles can be assigned at post D-structure level. Expletiveshave neither c-selectional nor s-selectional properties, hence they can be inserted at S-structure without violating the theta criterion or the projection principle. The expletive elements other than the nominal *it* and *there* which can be inserted at S-structure are the verbal elements copula *be* and *do*-support.

According to the proposal by Fukui and Speas (1986) which we adopt in this study, the requirement of the EPP are subsumed under Kase assignment. According to their formulation, the obligatory presence of a lexical NP in subject position, [Spec, AgrP], in English, via the insertion of an expletive NP (33), by the movement of an NP from the complement (34) or by movement of the external argument (35) is required to saturate the Kase grid of AGR.

(34) $[_{IP}$ Poirot$_i$ $[_{I'}$ -s $[_{VP}$ seem $[_{IP}$ t_i to have solved the case]]]
↑— NP movement ——┘

(35) $[_{IP}$ Child$_i$ $[_{I'}$ -s $[_{VP}$ t_i read $[_{NP}$ the book]]]
↑— NP movement —┘

[10] Verbs which are traditionally called intransitive verbs include two types of verbs. Burzio (1986) based on his study of Italian shows that verbs like *telefornare* take an external argument while verbs like *arrivare* have only an internal argument. According to Burzio the latter type do not assign Accusative case, hence these verbs are called unaccusative verbs.

To summarise, in order to be well formed all elements in a structure must conform to the licensing conditions that hold at each level. Principles other than the X-bar schema which constrain the mapping from the Lexicon to the Syntax are:

i. Theta Criterion: a. Every thematic position must be discharged
b. if X discharges a thematic role in Y then it discharges only one.

ii. TRAC: No phrase at all can intervene between a θ-role assignor and an assignee. The LCH arises from this requirement that a head must dominate the phrase to which it assigns a theta role.

iii. UTAH: Identical thematic relationships between items are represented by identical structural relationship between those items at D-structure (section 2.2.2.1 C).

iv. Generalised Projection Principle: C-selectional, s-selectional and m-selectional properties must be satisfied at all relevant level, i.e., D-structure, S-structure, LF and PF.

v. Case Filter: *NP if NP has phonetic content and has no Case.

We will now look at relationships between elements and constraints that apply within UG.

D. M-command, C-command and Government

It is important to define the relation between a governor and a governee for it is under this relation that both theta role assignment and Case assignment can take place. Further, government of the specifier by the head is also required for Spec-head agreement to take place. Government is a localised relation between governor and governee within a certain domain. Using the notion of m-command, Chomsky (1986b) defines government as;

(36) A governs B iff
i. A is a governor;
ii. A m-commands B;
iii. no barrier intervenes between A and B.
where

(a) governors are the lexical heads (V, N, P, A) and tensed I;
(b) maximal projections are barriers. (Haegeman 1994:160)

That is, a category governs another category only if the governor is a head category and there is mutual m-command between the two elements.

(37) M- command; An element is said to m-command all the elements within its domain, i.e. maximal projection.

(Under this definition AGR^0 governs [Spec, AgrP] since AGR^0 is a head (and if it is +TNS), it is within the same maximal projection IP and there is no intervening maximal projection which can act as a barrier).

A specifier is assumed to be governed by a special relation - coindexation, which is assumed to apply automatically between heads and their specifiers (Chomsky 1986b). Ouhalla (1991) states that Spec-head coindexation takes place only if the head contains features which agree with the features of the specifier. For example in finite clauses AGR governs its Spec position because AGR is coindexed (contains the phi features) with its specifier, while in infinitival clauses INFL does not govern its Spec position as it lacks the AGR element.

C-Command

C-command differs from m-command in that in m-command X is interpreted as a maximal projection while in C-command X is equated with the first branching node (Haegeman 1994).

(38) A c-commands B iff A does not dominate B and every X that dominates A also dominates B. (Chomsky 1986b:8)

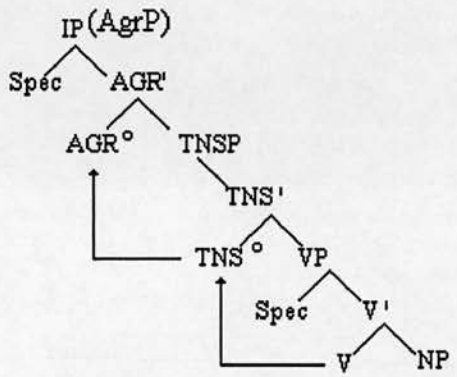
E. Movement Theory

Move-alpha which maps D-structure on to S-structure and then to LF, can affect both maximal projection -XP or head categories X^0. The Structure Preserving condition (Emonds 1976) requires that maximal projections move only to maximal positions, and head categories to head positions.

Given that the inflectional categories project their own independent categories, Baker (1988) suggests that in the 'incorporation' of Agreement and TNS affixes the verb, a

X^0, base generated under V moves cyclically to the head positions of AGR and Tense as illustrated in (39).

(39)



Baker provides substantial evidence that in movement X^0 categories obey the *Head Movement Constraint* (HMC), a locality constraint, which is a subcase of the ECP (Empty Category Principle). HMC rules out movement to hierarchically lower positions as in affix hopping.

(40) HMC: An X^0 may only move into the Y^0 which properly governs it. (Travis 1984:13)

Therefore, in order to be licensed a moved element must antecedent-govern (properly govern) its trace. Proper government is defined as government by a coindexed element in an m-commanding position.

(41) Antecedent Government

A antecedent governs B
i. If A governs B;
ii. A and B are coindexed (Haegeman 1992:xv)

An element has to be configurationally in a higher position in the tree in order to m-command another element. Therefore, affix hopping is ruled out on the basis that the antecedent would not be able to m-command the trace. Lack of m-command implies lack of proper government. For example, I to V movement would result in ungrammaticality because the moved I would be in a position which does not m-

command its trace in I (Ouhalla 1991). Thus, it is assumed that a verb (or any other head category) can move only to the head position that m-commands the trace.

A further assumption made in movement theory is that an element moves only if it is required to do so by some general principle of the grammar (Chomsky 1986b). The principles which motivate movement depend on the nature of the movement process. For example, the movement of the thematic subject NP from the Spec of VP to the Spec of IP is prompted, like all NP movement, by Case requirements. Head-to-head movement of the verb in the acquisition of inflections arises from the *Stray Affix Filter*, which rules out the presence of unattached affixes at the S-structure level.

Two types of Movement processes are assumed; substitution and adjunction (Chomsky 1986b). Substitution is the process whereby a head or a maximal projection moves to a head or maximal position which is empty. For example the movement of the thematic subject to Spec of IP is such a process.

Adjunction on the other hand, involves the movement of a head or a maximal projection to an already filled head or XP and its adjunction to the existing element. Adjunction can be to the right or the left of the host, subject to parametric variation. It is specified that in adjunction, the categorial nature of the derived structure is determined by the host category and not by the adjoined category. Therefore, in the case of V movement to Tense in English, the TNS element being [+V] according to the above the [V+TNS] head too would be [+V] or as discussed earlier (in 1.2.1.3.3) V movement to ASP specified [+N] would result in the [V+ing] being [+N] too. Further, in head-to-head movement extraction from a complex X^0 category is banned (Baker 1988). Once a head category has been incorporated with another it cannot be extracted from the complex and moved up in the structure; the [V+TNS] complex head has to be moved as a whole to AGR to yield [V+TNS+AGR].

F. A-positions and A'-positions

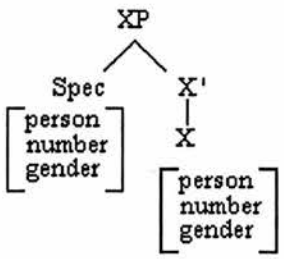
Rizzi (1991) proposes that

(42) α is an A-position if :

i. α is assigned a thematic role, or
ii. α is construed with agreement.

According to Rizzi's definition the A-status of a position is determined in configurational terms, i.e. in terms of Spec-head relations, as well as in terms of the feature content of the positions. Spec-head co-indexation and A-position is illustrated in (43).

(43)



It has been argued that,

"What is relevant for the A-status of a position is not simply that it be a specifier of a projection of AGR or of a head with AGR features: the element in the Spec position shares agreement features with AGR" (Haegeman 1994:666).

Therefore according to this definition although [Spec, AgrP] is the canonical A-position AGR may either project its own AgrP or AGR may also be associated with another head such as C as in German or Dutch. In V2-languages such as German, the verb construed with AGR moves to C and the external argument moves to [Spec, CP], thus enabling Spec-head agreement between the head and its specifier. Hyams (1994) following Rizzi (1994) proposes that although [Spec, CP] is canonically an A'-position, it can sometimes be an A-position. When the subject bearing the index of AGR moves to [Spec, CP], by transitivity, the [Spec, CP] is construed with agreement (assuming that CP inherits the index of the specifier) and thus becomes an A-position.

(44) $[_{CP}$ John$_i$ $[_C$ $[_{IP}$ t_i AGR$_i$.....]]]

A-positions are therefore either thematic position or specifiers of heads marked [+AGR] or more precisely, heads construed with agreement in phi-features (person, number and gender).

2.3 Conclusion

In this chapter we set out to make explicit come of the basic tenets and principles on which this study is based. The Functional Parameterisation Hypothesis, by restricting the parametric variation between languages to a finite set of items accounts for cross-linguistic variation and simplifies the task of acquisition, thus meeting the aims of linguistic theory.

We also sketched out the framework of the Principles and Parameters Theory in terms of the levels at which the different principles of UG apply. The contrastive analysis of Sinhala and English (in Chapter 4) will be based on the theoretical assumptions outlined in this chapter. Parametric variation between the two languages will be assumed to stem from differences in the functional categories. Further, the argument structure will be considered as base generated within the VP, and it will be accepted that the verb acquires inflections via cyclic head-to-head movement. These assumptions are in keeping with the analyses of Sinhala and English proposed by Gair (1983, 1988, 1990, 1991), Sumangala (1991, 1994) Fukui and Speas (1986), Speas (1990a, 1990b, 1993) and Ouhalla (1991).

The next chapter will be a review of current thinking and empirical findings in second language acquisition research. This will be followed by the contrastive analysis of the structure of INFL in English and Sinhala, which, in conjunction with the acquisition theory chapter will lead to the formulation of the hypotheses tested in this study.

Chapter Three

A PARAMETER SETTING MODEL OF SLA

3.0 Introduction

Competence or I-language has been defined as the knowledge speaker/hearer's has of her language (Chomsky 1986a). This knowledge or ability[1] allows the native speaker to to give intuitive judgments about syntactic well-formedness on the one hand and syntactic structure i.e. syntactic relation between words, on the other. This ability in its steady state[2], according to the principles and parameters model is manifest in a mature grammar where all the relevant parameters are set to the appropriate values for a given language. Within this framework, it is assumed that in first language acquisition, the child arrives at the target language values of parameters through the interaction of input with the innate principles of UG. In the case of non-primary language acquisition, however, unlike in first language acquisition, the non-native acquirer approaches the language acquisition task with a fully fleshed out grammar, which means that certain parametric options are necessarily already instantiated (Schwartz & Sprouse 1994).

Thus, in contrast to first language acquisition, the special character of SLA arises from the fact that at the start of the acquisition process values to certain parameters are already 'fixed'. This suggests that, if L2 learners are to have an underlying competence which approximates that of native speakers, not only must they assign values to new parameters but if L1 values of parameters are different from the L2, may need to reassign values to parameters to those of the target language. Within the Functional Parameterisation Hypothesis (FPH) parametric variation is confined to the functional categories. Languages can vary as to the particular FCs instantiated (Ouhalla 1991), languages may also vary as to the values assigned to the same FC (Iatridou 1990). Learning a second language would therefore require the learner like her L1 counterpart to activate new functional categories not activated in her L1. Unlike her L1 counterpart, however, it would also require her to change the values to existing functional categories if the L2 values are different.

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[1] See Chomsky (1986a) pages 10-11 for a discussion of 'ability' which refers to the stable knowledge speakers/listeners have.

[2] Within Chomskyan linguistics the language faculty is assumed to be a distinct system of the mind with an initial state S0 common to the human species. With exposure to appropriate experience, that is, a particular language, this faculty passes from S_0 through a series of $S_{1,2,3,n}$ to a relatively stable steady state S_s which is equated with state of the faculty or I-language at ultimate attainment.

This leads to the questions whether in the acquisition of a second language,

a) L2 learners are able to 'activate' functional categories not instantiated in their L1, and

b) whether they are able to 'reset' values as appropriate to the TL when the L1 and the TL instantiate the same FC but with different values.

The study of the nature of second language competence with regard to the parameterised aspects involves looking at the developing competence as well as competence at ultimate attainment.

The questions bearing on the nature of the competence at ultimate attainment are the following: how are FCs not instantiated in the L1 represented in the underlying grammar of the L2? How are FCs which have different values in the L1 and the L2 represented in the underlying second language grammar?

The questions regarding the development of FCs in the L2 are: is there a difference in the development of a FC that needs to be 'reset' and a FC that needs to 'be activated' in the L2? That is, are both FCs present from the outset and does the fact that it is already instantiated in the L1 grammar facilitate or impede its development in the L2?

In order to gain an understanding of the nature of L2 competence that will lead to the formulation of hypotheses on parameter 'setting' and 'resetting', it is necessary to look at related research carried out in second language acquisition. In this chapter we will review the literature from the following perspectives. First we will look at the mechanisms employed by L2 learners (section 3.1). Next, (section 3.2) we will examine the nature of the L2 grammar, at ultimate attainment and during the developmental stages. The relationship between the nature of the competence at ultimate attainment and the learning mechanisms leads to a discussion about the implications for the mental representation of FCs in the second language grammar at near-native level. The section on developing grammars first looks at existing studies which focus on 'activating' and 'resetting' parameters in the L2. This is followed by a survey of more recent studies that concentrate on the instantiation and development of FCs in the ILG. The subsequent sections (3.3 and 3.4) are devoted to explanations given in SLA research for the differences between native and non-native grammars. In the final section we draw our conclusions as to the nature of L2 competence. The conclusions based on the foregoing examination of existing studies provide the framework for the hypotheses in the present study.

3.1 Learning Mechanisms in L2

3.1.1 'Transfer'

From very early on researchers in second language learning have been intuitively aware that a learner's first language exerts an influence in the learning of a second language. In early research the term *language transfer,*

"generally stood for a set of phenomena discernible in the speech or writing of speakers of L2s whereby some aspect of the (surface or deep) structure of the speaker's L1 is said to be regularly substituted for an appropriate L2 form, often, but not always, resulting in non-native L2 production." (Schachter 1991:155)

Accordingly, studies carried out in the traditions of Contrastive Analysis, Error Analysis etc. focused on errors due to the direct transfer of L1 features to the L2.

Subsequent studies bearing on the influence of the L1 on the acquisition of the L2 go far beyond what would traditionally have been called transfer. In recent research the focus is on the subtle influences the L1 exerts on the L2, rather than the transfer of surface features. 'Transfer', within the framework of parametric variation where language specific differences are limited to particular options or parameter values available in UG, is seen in terms of carrying over the parameter settings of the L1 to the L2 (White 1988). Research within this approach concentrates on the influence the abstract grammatical properties of the L1 has on the acquisition of the L2 (White 1985, 1987, Schachter 1989, Bley-Vroman 1989, Flynn 1988, Sorace 1992 etc.). Studies therefore focus on, for example, the movement from superset values in the L1 to subset values in the L2 (White 1989, Rutherford 1989), the (in)ability to make use of positive evidence (Zobl 1987, Sorace 1993a) etc.

The assumption that the final state of the native language in some way forms the first stage in the L2 grammar implies that learners will carry over those FCs instantiated in the L1 and at least some of their properties from the L1 to the L2. Therefore, FCs not activated in the L1 will not form a part of early ILG while FCs activated in the L1 will.

3.1.2 Universal Grammar

The principles and parameters theory of grammar holds that linguistic competence stems from innate knowledge or Universal Grammar. Therefore, the nature of L2 competence is closely linked to the potential availability of UG in non-primary language acquisition.

Chomsky makes the assumption that

"... the property of mind described by UG is a species characteristic, common to all humans". (1986a.18)

The existence of a language-specific cognitive module has a long tradition in the field of language acquisition. Some of the earlier formulations of this module refer to it as the 'cognitive organizers' (Dulay and Burt 1977), linguo-cognitive module (Wode 1981) or the Language Acquisition Device (LAD).

In first language acquisition all non-pathological children attain a steady-state grammar which is shared by all native speakers in that speech community. The total success in L1 acquisition is attributed to the fact that it is guided purely by UG and its interaction with primary language data (PLD). Research in L2 acquisition however has shown that knowledge of the L2 at ultimate attainment even when the learners share the same first language, is not uniform. Given the assumption that L1 acquisition is guided by UG, differences between first and second language acquisition in the developmental sequences as well as at ultimate attainment have led researchers to question the availability of UG in L2 acquisition. Further, unlike L1 learners, in addition to PLD, L2 learners (in a classroom setting) also have available to them metalinguistic knowledge, negative evidence and explicit positive evidence. Apart from not starting from a zero language position, adult L2 learners also have cognitive maturity and a fully developed non-language-specific general learning mechanism available to them. Bley-Vroman (1989) enumerates nine ways in which adult language acquisition significantly differs from child language acquisition and posits The Fundamental Difference Hypotheses.[3] He cites research which shows that motivation, attitude and overt instruction influence adult L2 acquisition, whereas these factors are irrelevant in L1 acquisition. He concludes that adult language

[3] Schwartz (1990) has criticized the Fundamental Difference Hypotheses, arguing that none of the 9 differences between L1 and L2 provides sufficient grounds for claiming that UG does not operate in adult L2.

learning has more in common with nonlinguistic problem solving than with child language learning.

On the other hand, those who argue that L2 learners have access to the principles and parameters of UG point to the logical problem.[4] They also attempt to show that the ILG does not violate the principles of UG by accounting for the L2 data via independently motivated principles and parameters (duPlessis, Solin, Travis and White 1987, Tomaselli and Schwartz 1990). The non-availability of negative evidence[5] is another argument put forward to substantiate the claim that L2 acquisition too is guided by UG (White 1991a 1991b, Schwartz and Gubala-Ryzak 1992).

In learnability theory uniformity of development is a primary criterion for supporting the existence of a language specific module (Pinker 1979). The 'morpheme order studies' carried out in the 1960's and early 1970's compared L2 learners (English) from different L1 backgrounds and they also compared the data obtained from L2 learners with that of L1 learners. Despite the methodological problems with many of the morpheme order studies, they showed that there are crucial similarities between L1 and L2 development in the acquisition of morphemes in English. These studies also noted similarities in the developmental sequences in grammars of learners with different L1 backgrounds (see Dulay, Burt and Krashen 1982 for a detailed discussion). The fact that similarities exist independent of the learner's L1 was interpreted to support the assumption that both L1 and L2 acquisition are guided by the same underlying mechanisms. Although such developmental similarities could be attributed to guidance by non-linguistic mechanisms, the fact that such similarities were observed across age different groups was taken as an indication that the mechanism guiding the different types of language acquisition was the language-specific one (UG), the assumption being that children do not as yet have the kind of cognitive abilities adults may use for language processing.

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[4] The discrepancy between experience and eventual ability : the poverty of stimulus argument shows that the knowledge achieved goes beyond the input received.

[5] Studies have shown that L2 learners do not to make use of negative evidence. The study carried out by White (1991a, 1991b) attempted to find out whether French learners of English could change the values of AGR from being transparent to theta role transmission to being opaque. It was found that although L2 learners changed their linguistic behaviour on receiving negative evidence, they reverted to the original position once instruction ceased. Schwartz and Gubala-Ryzak (1992) reanalysing the data in White's study point out features which are inconsistent with a 'reset' parameter in the judgements given by the L2 learners. They argue that the 'underlying competence of the L2 learners was never affected' by negative evidence or explicit positive evidence. They maintain that as with L1 learners the only input that is able to engage UG and thus result in restructuring of the IL is PLD.

Theoretically, if the language-specific cognitive module is innate then by implication it must be available to all human beings. However, it has been argued (Borer and Wexler 1987, Guilfoyle and Noonan 1988) that although this knowledge is not 'acquired', UG and more particularly the functional module (Radford 1990) becomes available as a result of a genetically-determined maturational program[6]. Based on observations from child language acquisition of English, Radford proposes that the child, in acquiring her L1, starts out only with lexical categories, i.e., Nouns, Verbs etc. and their maximal projections. The Functional projections, DET, INFL and COMP and their projections appear only when the child is around 24 months. Since FCs are within the functional module, Radford argues that the functional module is biologically determined to emerge at specific points in development after the emergence of lexical categories. This would be one explanation as to why FCs appear only at a particular stage in the development of the first language. On the other hand, those who argue for the continuity hypothesis (Hyams 1983, Pinker 1984), oppose this position. Grammatical principles and grammatical categories, under this view, are available from the outset to the child and development results from the acquisition of lexical elements and the values associated with these elements. The continuity approach is supported by evidence from child language acquisition of French, German and Dutch (Hyams 1994) where it is argued that functional projections are present in early child language too. These two opposing positions have interesting implications for non-primary language acquisition. Lenneberg (1967) proposed that the Language Acquisition Device or certain aspects of language become unavailable with maturity. Tsimpli and Rousseau (1991) and Tsmpli and Smith (1991) who subscribe to the maturation hypothesis, argue that since functional categories become available with maturity, the functional module or the UG lexicon is linked to maturation. Therefore, if UG or some aspects of it is unavailable in adult language acquisition, due to the link with maturation imposed stages, the functional module would be the module which is unavailable in adult language acquisition. This would imply that second language learners are unable to activate functional categories not instantiated in their L1 and it would also mean that learners are unable to 'reset' the values assigned to FCs in their L1, when the same FCs are assigned different values in the TL. Under the strong version of the continuity approach on the other hand, there is no reason for the functional module to be unavailable at any stage and learning a

[6] According to the maturational hypothesis (Radford 1990), the onset of functional categories in L1 acquisition is associated with maturation, i.e. that FC 'mature' according to a genetic time-table. See section 1.0 of the introduction for a discussion of the link between functional categories and maturation.

language would require the acquisition of the lexical elements (in this case the FCs) and their values. The implication of the continuity hypothesis for second language acquisition is therefore that learners will be able both to activate and reset FCs.

Thus, the two main schools of thought in L2 acquisition literature on the availability of UG in SLA are:

1) The principles and parameters of UG are available in L2 acquisition,
2) L2 learners have no access to UG but rely on general learning mechanisms.

Within the position that UG is available in L2 acquisition, two opposing views have been advanced on the *extent* of the availability of UG. One is that L2 learners have 'indirect' access, that is, UG is available to the L2 learner only in the form in which it is instantiated in the L1 (Schachter 1988, Bley-Vroman 1989, Tsimpli and Smith 1991, Tsimpli and Rousseau 1991). According to this position, when the L1 and L2 differ in their realization of UG learners are unable to reset parameters as they do not have access to aspects not activated in the L1. Therefore, in this case, it would mean that L2 learners are unable either to activate new FCs in the TL or reset values existing FCs. The other position is that although access to UG is mediated through the L1, learners are not necessarily 'stuck' with L1 parameters, that is, they have access to aspects of UG that are not realised in the L1 (White 1988, Flynn 1987, Zobl 1989, 1990). Accordingly, L2 learners will be able to activate and reset parameters not realised in the L1 that is activate FCs not activated in their L1 as well as reset values to FCs when different from the L1.

We will examine the evidence available for each of these positions and their implications for the availability of functional categories in second language acquisition.

3.1.2.1 The 'UG Lexicon' is Inaccessible in L2 Acquisition.

According to the view that only aspects UG encoded in the learner's L1 are available in L2 acquisition, other possible parameter settings in UG are assumed to be unavailable to L2 learners. Therefore, neither the activation nor resetting of FCs is possible in L2 acquisition.

This is the view adopted by Tsimpli and Smith (1991) and Tsimpli and Rousseau (1991) with regard to the acquisition of functional categories in a second language. However, they also argue that although the parameterised aspects, that is the 'UG

lexicon' (Tsimpli and Ouhalla 1990) are subject to maturation and therefore unavailable in L2 acquisition, the principles of UG are universal, hence available in any language acquisition process[7]. In addition to the principles of UG and the parameters activated in the L1, L2 learners are also assumed to have access to general learning mechanisms.

Since L2 learners have access to the parameters activated in their L1, Tsimpli and Smith (1991) and Tsimpli and Rousseau (1991) assume that learners will initially transfer the functional categories as well as the values associated with them from the L1 to the L2. They propose that although L2 learners have no access to the functional module, advanced learners are able to provide an alternate analysis for the overt manifestations of the FC in the second language on the basis of the principles of UG and general learning mechanisms. The claim that L2 learners do not have access to the parameterised aspects of UG not activated in the L1 (Tsimpli and Smith and Tsimpli and Rousseau) is based on a study of the acquisition of the pro-drop parameter (AGR) by Greek learners of English. The presence of null subjects in early ESL is attributed to the transfer of the L1 value of the pro-drop parameter, i.e., that the ILG, like Greek, is a pro-drop language with an AGR that licenses a pro subject in [Spec, AgrP]. The data shows that with increasing proficiency in Greek learners find null subjects ungrammatical in English with the exception of null expletive subjects. The continued presence of null expletive subjects even after recognising that English does not have a 'rich' AGR is taken as an indication that the AGR parameter has not been reset. Thus, unlike in L1 acquisition it is stated that

"Learning the morphological realisation of Agreement in L2 does not result in changing the parametric value; if this was the case, then we should expect phonetically realised subjects to be obligatory in all environments" (Tsmpli and Rousseau 1991:163).

They account for the discrepancy between the unacceptability of null referential subjects as opposed to the acceptability of null expletive subjects in the ILG as a manifestation of the operation of the principles of UG: the principle of the

[7] The claim that the principles of UG are available in L2 learning is also substantiated in other studies such as those carried out by Thomas (1991), Martohardjono and Gair (1992) etc. Thomas investigated the acquisition of reflexive binding including the c-command constraint in Japanese by adult L2 learners. Thomas found no significant difference between the Japanese controls and learners at any level of proficiency suggesting that the c-commanding constraint is available in L2 acquisition.

recoverability of the contents of null subjects (Rizzi 1986).[8] The null expletive does not require identification due its non-referential status, but null referential subjects do. Overt agreement features are needed to fulfill the identification requirement of *pro* referential subjects. Since English has none, it is suggested that in the grammar of more advanced learners that "... subject pronouns *(referential)* are re-analysed as Agreement elements occupying the head position of AgrP thus leading to the identification of the null subject" (Tsimpli and Rousseau 1991:159), hence, the unacceptability of null referential subjects and the acceptability of null expletive subjects at more advanced levels.

Since both Greek and English instantiate the Functional category AGR but with different values, the results from this study suggest that L2 learners are unable to 'reassign' values to match those of the target language. This suggests the non-availability of the functional module. If the functional module is unavailable it implies that L2 learners will also be unable to access functional categories not activated in the L1. However, since learners at more proficient levels provide alternate analyses for the overt manifestations of the FCs in the L2, the implication is that they will also re-analyse the overt manifestations of the non-activated functional category so as not to violate the principles of UG.

3.1.2.2 The 'UG Lexicon' is Accessible in L2 Acquisition

According to the view that L2 learners can go beyond L1 parameters, UG can be reactivated. Proponents of this position assume that although L2 learners may use principles and parameters from their L1 as an interim way of dealing with the L2 data, they are able to reset the parameters given the appropriate TL input data (White 1988b). Therefore, even though learners may initially adopt the value of the L1, since they have access to other possible parameters (Functional Categories) in UG they will be able to 'activate' FCs or 'reset' values to those of the target language.

This is the position advanced by Zobl (1989, 1990) based on his study of the acquisition of the functional category AGR in English by Japanese first language speakers. The values assigned to AGR in Japanese differ from those assigned to AGR in English. In this case, Zobl claims that although L2 learners may initially use

[8] As will be discussed in section 4.3.5, according to Rizzi (1986) one of the conditions which regulate the presence of null subjects is identification. Identification requires that the contents of the null subject be recoverable. In languages such as Italian and Greek, the phi features of AGR, in Spec-head agreement with the subject, enable identification of the null element.

principles and parameters from their L1 to analyse or in this case misanalyse the L2 data, they are able to reset parameters. Unlike Tsimpli and Smith (1991) and Tsimpli and Rousseau (1991), it is argued that piece-meal solutions to the overt manifestations of AGR in the L2 data occur in early ILG, and more proficient learners eventually reset the AGR parameter. The feature in the ILG of Japanese learners that prompted Zobl to suggest that learners misanalyse the L2 data in early ILG is a tendency opposite to that noted by Tsimpli and Smith (op.cit.); that is the prevalence of expletive subjects in the production data (Zobl 1986). Zobl's findings correspond with the observations made in other similar studies carried out on the pro-drop parameter on the Chinese first language learners of English (Schachter and Rutherford 1979). Japanese and Chinese being pro-drop [+PD] languages do not have expletive subjects. Therefore, the presence of expletive subjects in the L2 grammar cannot be attributed to transfer. Japanese and Chinese are, however, topic prominent languages that have a pragmatic word order and therefore, in a clause the theme comes at the beginning and the rheme comes at the end (Comrie 1981). English, on the other hand, has a grammaticized word order and since subject and object are not free to move in response to the information structure in the discourse, the rheme is free to move. Therefore, in contrast to theme prominent languages like Japanese and Chinese, where non-topic-worthy NP's[9] are not allowed in topic position, in English indefinite and non-referential NP's can occupy the subject position. Zobl therefore claims that the prevalence of expletive subjects in the ILG of topic prominent first language speakers is an attempt to map the "syntactic representation of the L2... on to the discourse pragmatic representation of the L1" (1989:59). Based on evidence from several studies Zobl (1986, 1989) posits that when speakers of a topic-prominent L1 acquire a non-topic prominent L2, the subject NP is initially analysed as the Topic, thus applying the constraints on the topic position in the L1 to the subject position in the L2. He suggests that the overt expletive pronoun is used by these learners to keep

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[9] In order to be a topic an NP has to be both themeworthy and referential. The themeworthiness of an NP is presupposed both by the information that is presupposed i.e. whether it is the theme or rheme and by its position on the scale of referentiality. Davidson (1984) and Givon (1978) propose the following hierarchy of referentiality of NP's.

Highest: I, you
anaphoric pronouns - they, he, she...
referential definite descriptions - Princess Diana
indefinite specific NP - a well known lawyer
indefinite non-specific, generic - lawyers, quantified NP's: many linguists
Lowest: non-referential NP's - idiom NP's, any generics...

Thus, NP's have different degrees of themeworthiness or ease with which their referent can be identified. However, an NP can rank high in referentiality and yet be rhematic.

low referential and/or rhematic NP's out of the subject position.[10] However, he also goes on to say that although "..lower level learners resort to NP-movement to correlate the subject position with the thematic NP....with more advanced speakers, NP movement places a rhematic, non-referential NP in subject position" (1989:61). This indicates that with proficiency in English, Japanese learners permit low referential or rhematic NP's in the subject position. Therefore, by implication, at more advanced levels, expletive pronouns need no longer fulfill the function of keeping low referential NP's out of the subject position. In this way, although L2 learners initially misparse the L2 data, the Japanese learners eventually reset the AGR parameter while in the Chinese learners activate AGR in the TL grammar.

The results from this study suggests that L2 learners are able to both reset and instantiate functional categories not instantiated in their L1. This means the UG lexicon is accessible in L2 acquisition. However, since these studies do not investigate the nature of the knowledge representation of the FCs, i.e., the values assigned to the FCs at ultimate attainment, this still leaves the question whether the values associated with the FC are similar to those of the TL unanswered.

Thus, within the assumption that L2 learners have 'indirect' access to UG, there is a general consensus that at least some aspects of UG are available, although it may only be those aspects activated in their first languages. The evidence as to whether L2 learners have access to the parameterised aspects of UG not activated in their L1 however, is inconclusive since the two studies investigating the acquisition of functional categories in an L2 (Zobl (op.cit) and Tsimpli and Smith 1991, Tsimpli and Rousseau 1991) arrive at different conclusions. However, both studies note the initial use of L1 parameters to analyse the L2 input. Both studies also suggest that L2 learners may either misanalyse or re-analyse the L2 data at some stage in the ILG.

The two studies examined also highlight the difference in the acquisition task before L2 learners. The Japanese learners (Zobl op.cit) were required to activate a new FC in the ILG. The Greek learners (Tsimpli and Smith (op.cit), Tsimpli and Rousseau (op.cit)) on the contrary, had to reset values to an existing FC. 'Activating' a FC entails a change in the underlying grammar resulting from the computation of the consequences of the newly activated FC. Resetting values to an existing FC means that the change in the ILG is brought about by a disconfirmation of existing hypotheses. This involves discovering aspects of the L2 grammar which are different

[10] NP movement, the use of conditional and reversible psychological predicates are also used by Zobl as further evidence of constraints on the subject position in early ILG.

from the L1 and the implications the particular differences have on the rest of the grammar.

Next, we will examine the evidence put forward in support of the claim that L2 learning relies only on general learning mechanisms.

3.1.2.3. L2 Learners have 'No access' to UG

According to the view that UG is unavailable in non-primary language acquisition, adults use non-linguistic strategies to construct IL grammars (Clahsen 1988). Therefore, L2 learners do not have recourse to either the principles or parameters of UG. Because learner grammars do not conform to principles of UG they may contain 'impossible' (White 1988) errors and patterns not present in any natural language. Within the principles and parameters framework, the use of only inductive learning strategies implies that neither activation of new parameters nor parameter-resetting can take place since parameters are within the language module. "It is rather language acquisition without access to parameter setting" (Clahsen and Muysken 1989:23).

This brings us to the other mechanism which is said to be available in non-primary language acquisition : the General Problem Solving mechanism.

3.1.3. The General Problem Solving Mechanism

According to Krashen (1981) the language learning module and the problem solving module are linked to two types of linguistic knowledge; 'acquired' knowledge, which consists of subconscious rules can be called upon automatically, and is linked to the language module while 'learned' knowledge, comprising metalingual knowledge is linked to the problem solving module. The two processes are also linked to the conscious - unconscious or 'analysed' - 'unanalysed' (Bialystok 1981b) contrast. It is assumed that products of the central processes which consist of facts and observations is conscious and open to inspection whereas the linguistic knowledge is intuitive, unconscious and represents a system of beliefs that cannot be justified (Bialystok 1978, 1981b). In other words,

" 'Acquisition' operates incidentally to processing for comprehension and results in implicit, intuitive knowledge: 'learning' relies on memorization and problem-solving and leads to explicit, conscious knowledge about the language"(Zobl 1995: 35).

The knowledge structures in the problem solving module is assumed (Krashen op.cit) to be similar to the encyclopaedic knowledge we possess about non-linguistic domains such as contract law or particle theory.

Many researchers have suggested that non-primary language acquisition, unlike L1 acquisition, is not purely guided by the language learning module. Lamandella (1977) proposes that primary and secondary language acquisition are linked to two different types of neurofunctional systems and that each system has a different overall role in information processing. The role of the 'other' cognitive system in language acquisition has been a topic of much debate.[11] Krashen (1988) claims that although the knowledge types are separate and unrelated the 'learned' knowledge can be used to Monitor or improve utterances generated by means of acquired knowledge. Felix (1976) argues that in L2 acquisition the general problem solving system competes with the language learning system. Schwartz (1993) points out that the two knowledge sources lead to different kinds of linguistic behavior: competence leads to performance whereas learned language knowledge (LLK) leads to learned language behavior. Following Fodor's (1983) notion of modularity, it is suggested that LLK and competence cannot communicate with one another. Therefore, although the knowledge gained from negative evidence may feed the LLK it is unable to feed the language module.

With regard to the operation of the two modules responsible for IL development, Robertson (1991) suggests that they utilise different modes; UG employs a top-down and deductive mode while the general learning module operates in a bottom-up and inductive manner.

The aspects of a language which are thought to be learned using the inductive learning mechanisms are the language particular and the idiosyncratic, the assumption being that universal aspects are the domain of UG. The lexicon or learning the lexical items is thought of as learning language particular aspects. This taken in conjunction with the lexical parameterisation hypotheses would mean that learners have to use inductive learning mechanisms to discover similarities and differences between FCs in the L1 and the L2.

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[11] In many cases all that is not UG governed is taken to fall within the general learning mechanism. Although there is a large body of literature on general learning mechanisms (e.g. Wode 1981 - 'decomposition of target language structures', Schwartz 1986, Greg 1984, Hulstjin and Hulstjin 1984, McLaughlin 1978) there has not been much investigation in second language acquisition research as to how it operates nor how it interacts with UG.

3.1.4 Summary

Three positions have been adopted in SLA research with regard to the availability of UG in L2 acquisition.

A. UG is available but this availability is limited to the principles of UG and the parameterised aspects manifested in the L1,
B. L2 learners are able to move beyond the parameters activated in their native language, and
C. UG is not available in L2 acquisition; It is guided purely by general learning mechanisms.

Each of these positions has implications for the L2 learner's ability to 'activate' new Functional categories or 'reset' values to existing FCs. In positions A and B, in early ILG learners are assumed to transfer both FCs and their values from the L1 to the L2. In position A, learners retain the L1 values even at more proficient levels while according to position B learners are able to activate FCs not activated in their native language. According to both hypotheses the principles of UG are assumed to be available in second language acquisition, therefore the ILG is considered to be a 'natural' grammar. That is to say, it does not violate the principles of UG. In position C, parameter resetting does not take place in L2 acquisition and the ILG grammar would not be constrained by UG. Hence it will contain 'impossible' errors since neither the principles nor the parameters of UG are available.

The mechanisms which guide SLA have been used to define the nature of second language competence (White 1992). In the next two sections we will look at the relationship between UG, and the competence at ultimate attainment and competence in developing grammars.

3.2 Competence in the L2

'Competence' or knowledge of language refers to the grammatical competence or *I* language[12] (Chomsky 1986). Competence has been characterised as not only the set of well formed sentences (in the given language), but also the full range of subtle intuitions native speakers possess (Bley-Vroman 1989) about the language. Second language competence can therefore be taken to refer to the knowledge of the L2 or

[12] Internalized (*I*) language: a system of knowledge in the mind of every native speaker of the Externalized *E*- language. (Chomsky 1986a)

the mental representation L2 speakers have of their second language. The 'grammar' of a language which is '..a description of the ideal speaker's competence' (Chomsky 1965:4) is represented in the mind of the individual and is said to generate all and only the grammatical sentences of a language. Extending this we will assume that the underlying grammar of the L2 is represented in the mind of the L2 speaker and will generate sentences that are grammatical within that grammar.

We can view competence in a second language from two positions: that which learners have at different stages of development in the ILG and that which non-native speakers have at ultimate attainment.

3.2.1 Near-Native Competence

"Near-native" speakers are non-native speakers who are deemed to have completed the acquisition of the L2. This term usually refers to individuals who can (almost) pass as native speakers of a language which is not in fact their mother tongue.

The question asked in L2 acquisition is whether non-primary language acquisition can at some stage be as 'complete' as L1 acquisition. ('Complete' in the sense of being similar or identical to the competence of monolingual L1 speakers). Acquisition would involve not only the production of well-formed utterances, but knowledge of ambiguity, anaphoric relations, possible vs. impossible sentences. 'Complete' within the FPH would mean instantiating all of the functional categories found in the TL together with the appropriate values. This would entail activation and/or resetting some parameters as the case may be, together with the restructuring in the rest of the grammar to be consistent with the newly set parameters. The questions, then, with regard to ultimate attainment is whether the underlying grammar of L2 learners at 'near-native' level has activated all of the FCs in the TL and whether the values assigned to the FCs match those of the target language.

In many of the studies examining the nature of near-native competence, the intuitions near-native speakers have on a particular aspect of grammar are compared with those given by native speakers. The use of native competence to gauge the nature of near-native competence has been criticized on the grounds that L2 systems must be considered in their own right (Birdsong 1989, Bley-Vroman 1983, White 1992, Schwartz and Sprouse 1994). On the other hand, since the native speakers' grammar is constrained by UG, using native speaker performance as a criterion is a means of

determining whether non-natives ever achieve the kind of knowledge thought to stem from UG.[13]

Therefore, in studies that use native-speaker performance as the criterion, it is assumed that,

a) if the near-native competence is similar to that of native speakers', i.e. near-natives have intuitions similar to that of native speakers, L2 learners too must have access to UG.

b) if the near-native competence differs from the native, i.e. near-native intuitions are different to that of native speakers, L2 learners must use means other than UG to arrive at the L2 grammar.

However, the automatic conclusion that direct access to UG is unavailable in option (b) ignores the possibility that UG permits a number of grammars and that the native grammar is one of a number of possible grammars permitted within UG (Birdsong 1989, Bley-Vroman 1983, White 1982). It has been argued therefore that differences in the non-native competence could be a consequence of non-native speakers coming up with a different grammar but one which is still permitted within UG (duPlessis et al. 1987, Finer and Broselow 1985). Thus, a third position is that

c) although near-native competence differs from the native, L2 acquisition too is guided by UG.

The results from the studies investigating near-native competence are conflicting. Some report that fluent L2 speakers do not achieve native-like competence in certain areas, even if they pass as near native speakers (Coppieters 1987, Sorace 1991a, 1993a,b) while others report few differences between near-natives and natives (Birdsong 1992, White and Genesee 1992).

Coppieters' (1987) study which looks at the internalized knowledge of near-native speakers of French shows that there are quantitative as well as qualitative differences between the intuitions of non-native speakers and native speakers. The near-native speaker subjects had different L1 backgrounds and had acquired French as adults. Intuitions and interpretations on 107 sentences on a variety of aspects of French were

[13] In more recent research attempts have been made to account for the status of the non-native grammar using independent principles and parameters of UG (Schwartz 1991) rather than the comparison with native speakers.

elicited and discussed with native and non-native subjects. About 40% of the test items required subjects to choose one from two contrasting forms; if they chose both they were requested to articulate differences in meaning if any. The other 60% to the test sentences elicited straightforward judgments of grammaticality. The results showed that quantitatively, there is more consensus in the responses given by native speakers whereas the non-native responses tend to show more variation. Qualitatively, the near-native intuitions with regard to the meaning contrasts are different from the native. However, the near-natives are also observed to have complex and subtle knowledge not obviously available in the input.

Birdsong (1992) questions whether the conflicting nature of the results in the Coppietiers' study is due to a competence difference between near-native speakers and native speakers or whether it is due to methodological flaws in the study itself. He replicated Coppietiers' study with better test instruments and a more uniform criteria for selecting near-native speakers. All the near-native speaker subjects in Birdsongs study had English as their L1. One of the tasks was a judgement task which included some of the structures tested by Coppieters. Birdsong's results indicate that there is little difference in the competence between near-native and native speakers of French. In another more recent study which investigates violations of UG (White and Genesee 1992) too it is seen that the responses of near-native speakers were not significantly different from the responses of monolingual native speakers of English. Of the 89 second language subjects tested in this study, 58 were native speakers of French and 8 were native speakers of Romance languages other than French. Subjects took a grammaticality judgment task and oral and written production tasks on wh-question formation in English (i.e., testing the knowledge of long-distance wh-movement). The results show that the level of accuracy in the performance of near-native subjects on the grammaticality judgment task was indistinguishable from native speakers, as was their performance on the written production task. This would suggest that L2 learners can arrive at a competence comparable to that of native speakers.

However, we cannot determine from these studies whether UG was mediated by the L1 or whether L2 learners have direct or indirect access, since many of the principles investigated (i.e., long distance wh-movement and extraction from embedded clauses) are common to both the learner's L1 - French, and the L2 - English and access could have been via the L1. Therefore, in order to answer this question it is necessary to look at the nature of the competence of near-native

speakers whose first language does not instantiate the principles and parameters found in the TL.

Sorace's (1991b, 1992a, 1993a,b) study of the mental representation of unaccusative verbs and auxiliary selection in Italian as a L2 in the grammars of near-native speakers whose first languages were French or English, is an investigation of the nature of near-native competence when the L1 does not instantiate the parameters found in the TL. In this study acceptability judgements were elicited from 20 subjects whose L1 was French and 24 subjects whose native language was English. The criterion for near-nativeness in Italian was native-like performance from the point of view of fluency and accuracy. There was also a control group of 36 native speakers of Italian. The syntactic phenomena investigated was auxiliary selection with unaccusative verbs. Some unaccusative verbs in Italian exemplify certain syntactic behaviours, one of which is in the optional transmission of the auxiliary *essere* from an embedded verb to a matrix verb that independently takes *avere* (1), and the other is the obligatory change of auxiliary from *avere* to *essere* in sentences where there is movement of a clitic originating in the embedded verb to the matrix verb, (2).

(1) Mario e/ha dovuto andare a casa
Mario is/has had to go home
'Mario had to go home'

(2) (a casa) Mario ci e/*ha dovuto andare
(home) Mario there is/has had to go
'(home) Mario had to go there'

French has the same class of unaccusative verbs as Italian but a somewhat different system of auxiliary selection. That is, both languages select *avere/avoir* with transitive and unergative verbs and *essere/etre* with reflexive, passive and middle constructions. They differ in the selection of auxiliary choice with unaccusative verbs. Modern English on the other hand does not offer a choice of auxiliaries in perfect tenses (although *be* was in use until the beginning of the 19th century - e.g. 'he is come') and neither does it have clitics. In other words English does not instantiate the properties investigated in Sorace's study. Therefore, if we look at the acquisition task before the French and English learners of Italian, the French learners have to 'reset' some of the L1 properties while the English learners have to activate them. The judgements of French subjects on obligatory auxiliary switch in sentences with clitic climbing (2) is similar to that of native speakers. The English subjects, however, are unable to

distinguish between sentences with and without the obligatory auxiliary switch. In sentences with optional obligatory change (1), the French subjects accept the sentence with *avere* and reject the sentence with *essere*, whereas the Italian controls accept both. The English speakers cannot decide between the two auxiliaries and produce indeterminate judgements on both. The results indicate that the competence of neither group matches that of native speakers of Italian. This leads Sorace to the conclusion that although the non-native performance may seem native-like, their competence is not. Since some of the other existing empirical evidence (Coppieters 1987, Sorace 1988, 1991a, 1991b) permit an unequivocal interpretation either, Sorace suggests that "What ever the reason - reaching native-like competence with respect to *the whole* of the L2 grammar is an impossibility for the adult learner" (Sorace 1993a:2).

What is of particular interest in the study carried out by Sorace (op.cit), is the difference between the two non-native groups. The judgements given by French speakers, although different from native speakers, are consistent and determinate, i.e. they decisively reject sentence type (1) with the auxiliary *essere*, whereas the responses given by English speakers are inconsistent as well as different. That is to say, the English subjects do not express a definite preference for either of the auxiliaries in sentence type (1) and neither do they recognize the obligatory auxiliary change in sentences type (2). Sorace makes a distinction between the two types of underlying grammars :

> "The incomplete grammar, lacking a given L2 property P, would lead to random, inconsistent, in short *indeterminate* judgements about P, whereas the divergent grammar, since it incorporates an alternative representation of P, would lead to *determinate* judgements that are consistently different from native judgements." Sorace (1993a:18)

According to this study the nature of the near-native competence, with regard to a particular parameter, can either be 'incomplete' or 'divergent'. In an 'incomplete' grammar some element required by the TL grammar would be absent while in a 'divergent' grammar the property could have a different representation to that of native speakers. Since the judgments given by French speakers, although different from those of native speakers are decisive, that is, determinate Sorace concludes that the competence of French speakers is divergent. The judgements given by English speakers, on the other hand, are inconsistent and variable. Therefore it is inferred that their mental representation with regard to unaccusativity in Italian is incomplete. In other words the English learners do not instantiate unaccusativity. Thus, although at

performance level near-native speakers with both incomplete and divergent underlying grammars appear indistinguishable from native-speakers, the intuitions of near native speakers with the two qualitatively different types of mental representations are different from each other as well as from those of native speakers.

To summarise, the existing evidence suggests that the near-native grammar could either match that of native speakers or be different from that of native speakers. If different, the underlying grammar can be either divergent or incomplete.

3.2.1.1 Near-native Competence and Functional Categories

If we extend the notion of the qualitatively different types of near-native competence to the activation and resetting of FCs, it has interesting implications for the status of functional categories in the underlying grammar of near-native speakers.

A. If a particular FC instantiated in the L2 is not instantiated in the L1, and

1. learners do not activate it in their L2 grammar, the competence at near-native level is incomplete.
2. learners activate the FC in their L2 grammar with values similar to the TL, then the near-native competence is 'complete' (as opposed to 'incomplete', and the grammar converges with that of native speakers)
3. learners activate it in the L2 grammar, but with values different from the TL, then the near-native competence is divergent.

B. If a particular FC instantiated in the L1 is realised in the L2 as well but with parametrically variant properties, and

1. learners retain the L1 values, the underlying grammar is divergent.
2. learners 'reset' the values to those of the TL, the near-native grammar coincides with that of native speakers, i.e. it is 'complete'.
3. learners change the L1 values but arrive at values different from L2, the underlying grammar would be divergent.

According to this classification, the underlying grammar of near-native speakers can be 'incomplete' with regard to a particular FC only if that FC is found in the L2 but not in the L1. It could be divergent in instances where a new FC category needs to be 'activated' for the L2 as well as in cases where values to the properties of the same FC has to be 'reset'. There is however a qualitative difference between the two types

of 'divergent' grammars. In (B3) and (A3) learners access to aspects not activated in the L1 whereas in (B1) they do not. Therefore, a distinction can be made in 'divergent' grammars when taken in conjunction with the accessibility of the UG lexicon: 'divergent [+UG]' and 'divergent [-UG]'. Divergent [+UG] is obtained when the *parameterised aspects <u>not</u> activated in the L1* are accessed, and divergent [-UG][14], when the ILG *does not move beyond the L1 parameters*. The claim that a particular underlying L2 grammar is divergent [+UG] will be stronger if, in addition to being consistently different from the L1 and the TL grammars, the L2 grammar can be accounted for via independent principles and parameters of UG, that is, show similarities with possible natural language grammars.

The nature of the underlying grammar of near-native speakers, with respect to each of these positions is summarised in table 3.1

Table 3.1: The nature of the underlying grammar at ultimate attainment

	UG Lexicon accessible		UG Lexicon inaccessible	
	'complete'	'divergent [+UG]'	'incomplete'	'divergent [-UG]'
1. L1 does not realise the FC	learner instantiates FC with values similar to L2.	learner instantiates FC with values different to L2.	learner does not instantiate FC.	-
L1 realises the FC but with different values	learner resets values to those of L2.	learner arrives at values dissimilar to L1 and L2.	-	learner retains the L1 values.

Consequently, if the FC is one that is not activated in the L1, only if learners do not instantiate the FC in the L2 grammar can it be concluded that L2 learners have no access to the parameterised aspects of UG. In the case of resetting values, only if the underlying grammar at near-native level retains the L1 values of the FC can it be concluded that L2 learners have no access to the UG lexicon.

[14] A grammar which is divergent [-UG] will not violate the principles of UG as long as the grammar conforms to the L1 based system. However, if as suggested by Sharwood Smith (1988) the L1-based system is changed to accommodate some newly perceived input in the L2 following some general hypothesis not constrained by UG, then the grammar would contain elements that violate UG. Such violations would be tolerated because UG is no longer available in L2 acquisition.

In the next section we will examine how learners arrive at target language values of parameters, i.e. development in the ILG.

3.2.2 The Developing Competence

Learning a second language is a very complex process in which the learner attempts to formulate a mental representation that would account for the phenomena in the input data. According to the 'Interlanguage Hypothesis' (Selinker 1972, Corder 1974) the learner constructs a structured system which is distinct from the L1 and the L2 but which may contain elements of both grammars. The IL continuum is formed of an evolving series of 'approximative' systems leading to mature competence and it is assumed that at any point in the developmental continuum learners have an internalised grammar which constitutes their current competence (White 1989b). It is also assumed that the underlying grammars of learners at the same stage of proficiency roughly coincide.

Adjemian (1976) suggests that IL grammars, too, like the grammars created by children learning their L1, allow the user to generate an infinite range of novel sentences. However, ILGs differ from child language in that they are permeable to invasion from the learner's L1 system; that is, unlike the child grammar the ILG is not only sensitive to the L2 input but also subject to infiltration from the L1. Thus, a primary characteristic that distinguishes non-native grammars, especially during the developmental stages, from native grammars is thier permeability to infiltration from an 'alien' system (Sharwood-Smith 1988). Permeability or sensitivity to L2 input though essential for development, leads to indeterminacy since there is more than one possible grammatical option for the same aspect of grammar at a given moment.

Indeterminacy has been broadly defined

"as the absence of a clear grammaticality status for a particular linguistic construction in the speaker's competence, and which manifests itself either in the speaker's lack of intuitions or in variability at the intuition level" (Sorace 1988:167).

Different factors cause indeterminacy at different stages in the ILG. In the initial stages the grammar would be obviously indeterminate because it is incomplete. The learner cannot have intuitions about parameter settings not in her IL grammar. In the intermediate stages indeterminacy could be caused not by the lack of knowledge but rather because L2 knowledge is being reanalysed. That is, an existent setting could be

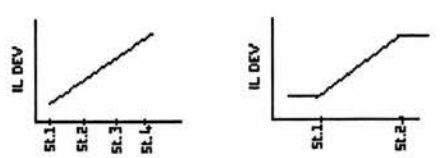
in the process of being changed. The process of restructuring leads to a temporary regression or the 'U' shaped curve noted in L2 production data (Kellerman 1985). Sorace (1988) suggests that the absence of determinate rules both at the early stages as well as at the intermediate stages may be reflected in the learners' intuitions. Thus, unlike native competence which is complete and therefore stable, the underlying competence in non-native grammars is by nature unstable due to the transitional state of the learner's knowledge. However, it has been argued (Sorace 1992b) that as with native intuitions the IL intuitions too are indicators of the underlying transitional representations.

Prior to examining the development of FCs in ILG we will look at the manner in which the ILG evolves, what prompts the development from one stage to the next and what success L2 learners have in 'activating' and 'resetting' parameters in L2 acquisition.

3.2.2.1 Linguistic Change in the ILG.

Two models of grammar change have been discussed in the theory of acquisition. One is that the grammar does not jump from one stage to the next, but rather slowly revises the interim systems to accommodate new hypotheses about the target language system. According to this the change effected is local and adds minor differences to existing grammars. In other words the sequence of development proceeds in the manner of 'i+1'. The other model proposes that the development is a succession of discrete changes and each change involves a global restructuring in the grammar (See White 1982 for a detailed discussion of the two models). The change in the ILG resulting from the two types of progression can be graphically illustrated, where 3(a) shows a pattern of cumulative development and 3(b) shows discontinuous development.

(3) Pattern of IL development



a. cumulative b. discontinous

The restructuring view of interlanguage development claims that the IL is an evolving continuum from the L1 grammar to that of the target language by a process of relexification (i.e. the use of L2 words in L1 syntactic patterns) and a gradual replacement of L1 grammatical features (McLaughlin 1987, 1990). Relexification is empirically substantiated, for example, in a study of the acquisition of English by a Spanish adolescent. Butterworth and Hatch (1978) found that the learner replaced Spanish words with English words, while retaining the Spanish syntactic patterns. Considered in the light of the FPH this could be construed as the learner initially transferring the properties of FCs of her L1 to the TL. Since the properties of FCs determine the surface order as well as the grammatical processes that elements undergo, it would be plausible to assume that if the learner used the L1 FCs and their values[15] as an interim strategy, the surface form of the IL structures would have an underlying syntactic structure similar to that of the L1.

On the other hand the parameter setting view of language acquisition maintains that a cascade of changes take place in the grammar as a result of the setting of a particular parameter. According to the standard parameter theory 'each parameter accounts for a whole set of superficially unrelated syntactic distributions' (Safir 1987:78). Therefore, a single parameter of UG has a range of consequences that affect a number of seemingly unrelated structures. In acquisition, a change in one of them is assumed to affect the others resulting in a sudden range of changes in the grammar to accommodate the newly set parameter. For example, the cluster of properties associated with the pro-drop parameter set to [+pro-drop]: null subjects, no pleonastic pronouns, rich verbal agreement, subject-verb inversion in declaratives and *that*-trace sequences[16], would involve a restructuring in the whole of the grammar.

Thus, there are two possible developmental sequences or patterns in the stages of language acquisition: gradual or cumulative changes and discrete or discontinuous changes[17]. In the case of cumulative development the change in the IL from one stage to the next is gradual whereas, in parameter resetting the implication is that the change is abrupt and discontinuous. These different patterns in IL development have also been associated with the different cognitive faculties: the gradual development

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[15] The transfer of the values of FC, coincides with the observation made by Ard (1987) that learners tend to transfer the subcategorisation frames and other syntactic features from the L1 to the L2.
[16] The properties of the [+pro-drop] value listed here are thse assumed by Chomsky 1981, White 1985,1986, Phinney 1987 in languages such as Spanish and Italian.
[17] In early IL theory this dichotomy is described as the difference between a developmental vs. a restructuring continuum.

with inductive, problem-solving mechanisms and discontinuous change with UG and parameter resetting (Sorace 1992c).

3.2.2.2 Motivation for Change in the ILG

In a recent study Schwartz & Sprouse (1994) suggest that the motivation for the movement from the L1 value of parameters towards the TL values arises from the need to accommodate more and more PLD resulting in a revision and re-revision of parameter values. This has similarities with the 'failure driven' approach to L1 acquisition proposed by Bowerman (1987) which claims that a

".. change takes place (in the grammar) when the child reaches an impasse in comprehending or producing a sentence or when the child's monitoring system determines a discrepancy between the way the child would express a given message and the way it is expressed in an in coming string". (1987:458)

Therefore it is possible that a revision of parametric values in L2 acquisition too comes about when there is a discrepancy between the input and the ILG.

To summarise, ILG consists of a series of transitional grammars that constitute the current competence of learners. The intuitions of learners at different stages of acquisition are assumed to reflect the underlying transitional representations. Movement from one stage to the next is prompted by the need to accommodate more and more primary language data. The progression from one stage to the next can be continuous and cumulative or abrupt and discontinuous.

3.2.2.3 'Activating' and 'Resetting' Parameters in the ILG

Within the Principles and Parameters model we can identify three potential relationships between the L1 and L2 parameter settings that require the L2 learner to proceed in different ways in the acquisition of an L2. Assuming that learners carry over the L1 parameter setting to the L2, in instances where the L1 and the L2 activate the same parameter with similar values, the learner can retain the L1 value, that is, she need not effect a change in the ILG. If the L1 and the L2 activate the same parameter but with values set differently, then the L2 learner has to 'reset' the values in the ILG. Third, the L2 may activate a parameter not activated in the L2 requiring the L2 learner to instantiate it in the L2 grammar. Many studies have looked at the

developmental processes that each of these different situations entail. In this section we shall consider them in detail.

The acquisition sequence observed when the L1 and the L2 instantiate the same principal with parameters set in different ways (that is, requires 'resetting' in the L2,) suggests that learners initially transfer the L1 parameter to the L2 until they realize that the L1 parameter setting is inappropriate (Phinney 1987, White 1985, 1986). White's study investigates whether Spanish learners of English transfer the L1 value of the pro-drop parameter to the L2. Spanish has a [+ pro-drop] value, which, according to the syntactic analysis adopted in the study, results in null subjects, no pleonastic pronouns, rich verbal agreement, subject-verb inversion in declaratives, (e.g. *Vino Juan*) and *that*-trace sequences (e.g. *Quien dijiste que vino*). English and French, on the other hand, have a [-pro-drop] value, hence, has lexical subjects, pleonastic pronouns, poor agreement, no subject-verb inversion in declaratives (e.g. *Came John) and no *that*-trace sequences (e.g. *Who did you say that came?). In the White (1986) study there were 32 Spanish L1 speakers and 37 French L1 speakers. The test consisted of two tasks: one a grammaticality judgement task and two, a written question formation task. The grammaticality judgement task elicited judgements on sentences which would be grammatical in Spanish, i.e., structures consistent with a [+ pro-drop] value, but ungrammatical in English. The results show significant differences between Spanish and French speakers in the judgements to null subject sentences, especially at lower levels of proficiency. The Spanish speakers are more likely to accept these than French speakers. Similar differences between groups, however, do not obtain in the other properties of the pro-drop parameter investigated, especially in VS sentences which were correctly rejected by both groups. The results are interpreted as an indication that the L1 value of the pro-drop parameter is carried over from the L1 to the L2, at least in the property of null subjects.

Phinney (1987) also focuses on two of the properties of the pro-drop parameter, presence/absence of subject pronouns and the agreement system. This study looks at the operation of the parameter in both directions, that is, native speakers of Spanish learning English as an L2 and native speakers of English learning Spanish as an L2. In the former the movement is from a [+ pro-drop] L1 to a [- pro-drop] L2 while in the latter, the movement required is from a [- pro-drop] L1 to a [+ pro-drop] L2. The learners were at beginner and lower intermediate levels. The data was obtained from free written compositions. The analysis of the data show that while native speakers of Spanish carry over the L1 value of the parameter, native speakers of English did not.

Spanish native spekers permitted null subject sentences in English while the native speakers of English correctly omitted both referential and pleonastic pronouns in Spanish. These results suggest that native speakers of Spanish carried over the L1 value to the L2 but native speakers of English did not. The explanation provided relates to the marked/unmarked nature of the values of the pro-drop parameter[18]. It is assumed that the [-pro-drop] value is the unmarked value and [+ pro-drop] is the marked value. Consequently, according to this study, the learners whose L1 had the unmarked value, that is the native speakers of English were able to acquire the more marked value in the L2. On the other hand, the native speakers of Spanish who had to move from a marked L1 value to an unmarked L2 failed.

To summarise the findings of these two studies, both Phinney and White found that Spanish L1 speakers learning ESL initially assume that English, like the L1, permits null subjects. On the other hand, the French L1 speakers in the White study do not accept null subjects in English. Since the values assigned to the pro-drop parameter are different between Spanish and English but similar in French and English, this would indicate that L2 learners initially transfer the L1 setting of the parameter to the L2. However, the difference between Spanish native speakers and English native speakers in the study by Phinny suggests that the transfer of L1 values is effected only when the value assigned to the parameter in the L1 is marked and the L2 value is unmarked.

Flynn (1983, 1984) compares the acquisition of an L2 by learners whose L1 parameter setting matches that of the L2 with learners whose L1 parameter setting does not match that of the L2. That is to say, learners who do not need to change the L1 parameter settings with learners who need to 'reset' the parameters for the L2. The study looked at what was known as the parameter of Principal Branching Direction (PBD) and the directionality constraint which links PBD to anaphora[19]. Adult native speakers of Spanish and Japanese were tested on the branching directions of complex sentences in English. Spanish, like English is a right branching language while Japanese is a left-branching language. If L2 learners are sensitive to the branching direction of English, they would find forward anaphora easier in English

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[18] The marked/unmarked setting of parameters is discussed in section 3.3.1 in this chapter.

[19] The PBD parameter has now been superseded by others, however, the general idea that parameters account for word order is uncontroversial. On the other hand, the directionality constraint (Lust 1983) which stipulates that right branching languages, like English, prefer sentences where the antecedent precedes the anaphor, e.g. 'After *John* had eaten, *he* went to a movie' and avoid sentences which have backwards anaphora as in "After *he* had eaten, *John* went to a movie'. However, most languages violate this constraint.

than backward. The test consisted of an imitation task and an act-out comprehension task using adverbial clauses. Flynn hypothesizes that there will be differences in the L2 acquisition of English anaphora; the Japanese L1 speakers have to start at the beginning since the branching direction of their L1 differs from English, hence, their development will parallel first language learners of English. The Spanish L1 speakers will be able to bypass this stage because their L1 has the same branching direction as the L2. The results show that the Spanish subjects had fewer difficulties than the Japanese with English adverbial clause structures. This would suggest that when L1 parameters do not match the TL, acquisition is delayed. However, the results from the act-out task showed that the Japanese were more accurate on the forwards anaphora sentences than the backward, while the Spanish showed no significant differences between the two anaphora. This study has been criticized on the grounds that inappropriate parameters and constrains have been identified. Other studies carried out on parameter 'resetting' and 'activation' however, suggest different acquisition sequences.

The study on the acquisition of unaccusativity and the selection of auxiliaries in Italian as a second language by English and French L1 speakers by Sorace (1992b) can be seen in terms of 'activating' and 'resetting' parameters. Unaccusativity as formulated in Sorace's study is a syntactic phenomenon in French but not in English (the details of the argumentation in this study was discussed in section 3.2.1 of this chapter). Consequently, French L1 speakers learning Italian have to 'reset' the parameter while English L1 speakers have to 'activate' it. The results show that at near-native level the underlying grammar of subjects who had to 'reset' the parameter, the French speakers is divergent, i.e., unaccusativity is present in their grammar whereas the underlying grammar of the subjects who were required to 'activate' the parameter, the English speakers is incomplete, that is to say, unaccusativity is not present in their grammar. These results therefore suggest that in some cases, in the acquisition of an L2, 'resetting' an existing parameter value is possible but 'activating' a setting not activated in the L1 is not.

On the other hand, Martohardjono (1993) investigating the relative acceptability of subjacency violations in English as a second language by Chinese, Indonesian and Italian native speakers claims that when parameter settings of the L1 and the L2 for the same parameter are different, switching parameter values is more difficult than selecting the parameter values for the first time. Acceptability judgments were elicited on subjacency violations in English from three groups of learners with Chinese,

Indonesian and Italian first language speakers. English permits subject and object extraction from relative clauses, adjuncts, wh-islands and Noun complements. Chinese and Indonesian do not instantiate syntactic movement (wh-movement) whereas Italian does but has a value different to that of English. Since Chinese and Indonesian do not have movement, learners with these languages as their L1, in acquiring wh-movement from a wh-island in English, have to set this parameter for the first time (i.e. that the most embedded IP is a barrier) that is to say, they have to activate the parameter. The Italians on the other hand, already have this parameter set, but to a different value, to the most embedded CP. These learners therefore have to reset the value to this parameter. The results from the acceptability task show that Chinese and Indonesian L1 speakers have a higher rate of accuracy on movement from wh-islands, i.e. the parameter on which Italian differs from English, than Italian L1 speakers. This suggests that 'activation' of a parameter is easier than 'resetting' values. This study has a further implication for our study, that is, L2 learners are able to activate parameters not activated in their L1.

The results from the studies examined enable us to draw the following conclusions with respect to 'activating' and 'resetting' parameters in L2 acquisition. In the case of values that have to be reset in the acquisition of an L2, learners initially transfer the L1 parameter value to the L2 when the L1 value is marked and the L2 value is unmarked. Although the existing studies do not explore the nature of the knowledge representation at near-native level when the movement is from a marked to an unmarked value of a parameter, the evidence from production data show that L2 learners subsequently 'reset' the L1 value. On the other hand, the initial transfer of L1 values does not appear to take place when the L1 value is unmarked and the L2 value is marked. These results thus show that it is possible for second language learners to 'reset' or change the values assigned to a particular parameter in the L1. The study by Sorace suggests that the underlying knowledge representation at near-native level, when the parameter needs to be reset is divergent, i.e., consistently different from native speakers.

The evidence from studies which look at the 'activation' of a new parameter are conflicting. The studies by Flynn and Martohardjono suggest that L2 learners are able to activate parameters not activated in their L1 whereas the study carried out by Sorace seems to indicate that it is not possible. Given this dichotomy, we propose that the ability to activate a parameter depends on the parameter concerned.

Both studies which compare parameter resetting with either no parameter change in the L2 (Flynn 1983, 1984), or with setting a value for the first time in the L2 (Martohardjono 1993) claim that acquisition is delayed when the L1 and the L2 instantiate the same parameter with different values. Martohardjono's (1993) study which compares the activation of a parameter with resetting shows that resetting a parameter is more difficult than activating one.

To conclude, these studies imply that second language learners are able to both activate FC and reset values to FC in the L2. They also suggest that resetting of values is more difficult than the activation of a new FC. This implies that in the sequence of development, resetting of values will take place at a later stage than the activation of parameters.

3.2.2.4 Development of Functional Categories in L2 acquisition

The development of functional categories in L1 acquisition has been studied in depth (Radford 1990, Aldridge 1991, Peopple and Wexler 1993) but it is only very recently that focus has been laid on the development of functional categories in L2 acquisition (Eubank 1992, Schwartz 1991, Vainikka and Young-Scholten 1994, Schwartz and Sprouse 1994). The primary question focused on in the recent studies on the acquisition of functional categories in the L2 is whether functional categories are available to L2 learners from earliest stages, through UG (Epstein, Flynn and Martohardjono 1993), through transfer (Schwartz and Sprouse 1994) or whether L2 learners like their L1 counterparts gradually build up functional projections based on input (Vainikka and Young-Scholten 1994).

On the basis of these and earlier studies in L2 acquisition carried out within the parameter setting framework, we will extrapolate possible developmental sequences for the development of FCs in an L2.

Earlier studies (pre-FC) on IL development can be broadly divided into two groups linked to the question of how 'natural' a language the L2 grammar is. According to those who argue that the ILG is not constrained by UG but driven by other mechanisms (Clahsen 1988, Clahsen and Muysken 1986), the L2 grammar is not a 'natural' grammar. Under this formulation, the principles activated in the L1 are transferred to the L2, hence, the L1 grammar serves as an initial template (Sharwood Smith 1988) for the L2 system. The IL is assumed to conform to UG until adjustments are made to the L1-based system to fit L2 input following some general

hypothesis which result in violations of UG, violations which would not occur had UG been active in the L2 acquisition process.

Others assert that IL is a natural language which is systematic and UG-governed (Adjemian 1976). The arguments for or against the ILG being driven by UG is based on how closely the L2 developmental stages parallel the intermediate stages of L1 acquisition (Dulay and Burt 1974, Bailey, Madden and Krashen 1974). A third school of thought on the other hand, attempts to show that ILG is constrained by UG by accounting for the stages of acquisition using independent principles and parameters of UG (duPlessis et al.1987, Schwartz 1989, 1991, Eubank 1992).

3.2.2.4.1 The Development of FCs Parallels that of First Language Acquisition

The developmental sequence outlined in a very recent study by Vainikka and Young-Scholten (1994), on the acquisition of Functional categories in German as L2 by Turkish and Korean L1 speakers suggests that the development of all the FCs in the L2 grammar i.e. those instantiated as well as those not instantiated in the L1, is similar to the development of FCs in L1 acquisition. It is claimed that in both L1 and L2 acquisition there is a three-stage developmental sequence. Both start out with a bare VP stage in which there is no verb movement, no obligatory subject nor overt subject verb agreement. This is followed by an intermediate stage which projects a Functional projection (FP) which is not specified as AGR yet and where some verb raising takes place but without other AGR related features such as subject-verb agreement marking, although both at stages 1 and 2 learners sometimes use the default suffix (infinitival/plural -n) regardless of the person/number referred to in the subject. In the third stage the FP is specified as fully fledged AGR resulting in verb raising, non-pro-drop and an overt agreement paradigm i.e., subject-verb agreement. Vainikka and Young-Scholten put forward the following implicational scale for the development of AGR in the ILG.

Agreement → verb raising → no null subjects → head-final VP

According to this study L2 learners do not transfer FCs or their properties from their L1 to the L2: rather, on input, they instantiate functional categories as first language learners do. This claim is made on the basis of a comparison of Turkish and Korean first language speakers' acquisition of AGR in German as a L2. Turkish marks subject-verb agreement but Korean does not but Turkish learners do not appear to

transfer the head-final AgrP from their L1 to German nor do they show a distinct advantage over the Korean speakers.

Although the acquisition of functional categories in the L2 parallels L1, some differences have been noted in the schedule of development. First, L2 learners are said to transfer the word order in the VP from the L1 to the L2. Second, the presence of the default suffix on raised verbs (at stage 2) is not a phenomena observed in L1 acquisition. Third, even at the stage when AgrP is acquired (i.e. there is subject-verb agreement, verb raising to AGR and non-prodrop) AGR is still head-initial in the ILG whereas at a similar stage in L1 acquisition AGR is head-final as it is in German. However, Vainikka and Young-Scholten propose a fourth stage in the ILG (not evidenced in the available data) where the headedness of AGR will be reanalysed with the discovery that verbs in embedded clauses which are in final position in German are marked for agreement.

The development of FCs in the L2 resembles that of the L1 in the three stages of development, but differs in the order of elements in the VP stage, the appearance of overt morphology and in the branching direction of the FC.

Hilles (1986) notes a further parallel between L2 and L1 development. Following Hyams' (1987) suggestion that in L1 acquisition, the expletive subjects *it* and *there* act as the trigger which resets the value of the pro-drop parameter from [+ pro-drop] to [-pro-drop], Hilles analyses the production data from a longitudinal study of a Spanish learner of English. Hilles claims that in the ILG too, the decline of null subject sentences coincides with the appearance of pleonastic pronouns. She also claims that these changes are accompanied by a restructuring in the rest of the grammar to coincide with the [- pro-drop] value of English. This would suggest that L2 acquisition too displays 'clustering' i.e. emergence of superficially unrelated phenomena which are covered by the same principle in UG at approximately the same time.

According to these studies, the development of FCs in the L2 grammar share certain similarities with the developemnt of FCs in L1 acquisition regardless of whether the FC in question is activated in the learner's L1 or not. However, given the large body of evidence from research in SLA, it seems unlikely that the L1 settings of a particular parameter would not influence the L2 at least in the initial stages. Further, given that L2 learners have a fully specified functional category system in their L1, it seems intuitively implausible to assume that in L2 acquisition learners revert to a stage which

projects only a bare VP. The reversal to a bare VP implies that the grammar projects only lexical categories and their projections. The fact that adult learners revert to a stage where there are no FCs in the grammar cannot be accounted for either according to the maturational hypothesis (Radford 1991) or according to the Continuity hypothesis (Hyams 1992). The maturational hypothesis assumes that in L1 development a lexical category stage is followed by a biologically determined FC stage. If so, L2 learners would necessarily have passed the FC stage in acquiring their L1 and, since the onset of FC is biologically determined, it would not, in principal, be possible for adults to regress to a pre-FC stage. A bare-VP stage in L2 acquisition cannot be explained within the continuity approach either. The continuity hypothesis holds that both lexical categories and functional categories (at least some FCs) are available to the child at all stages of acquisition. Consequently, it would be anomalous if the adult learner's grammar shows no evidence of functional categories.

3.2.2.4.2 IL Development is not Constrained by UG

Differences observed in L1 and L2 acquisition sequences have led to the assumption that L2 acquisition is guided by general learning mechanisms which are not unique to language (Bley-Vroman 1989, Clahsen 1988, 1990, Clahsen and Muysken 1986). Clahsen (1988) claims that a) the rule systems established in the intermediate 'grammars' in L2, unlike the intermediate grammars of the L1 'fall out of the range of principles permitted by UG' (1988:48), b) there is no 'clustering'[20], c) there is no evidence for a 'triggering' experience and d) the stages of acquisition are different from L1 acquisition.

Clahsen (1988) uses data from the acquisition of word order in German by Turkish first language speakers to support these claims. It is argued that the underlying order in child German is the correct SOV base order whereas for the L2 learner the base order is SVO in main as well as subordinate clauses. Clahsen also points out that in L1 acquisition the finite verb occurs only in second or initial position and not in sentence final position. These are seen as examples of an 'unnatural rule' resulting from the use of general problem solving mechanism which uses the surface structure - SVO, as the diagnostic for the base-word order in German. Children on the other

[20] In L1 acquisition the setting of a parameter is claimed to be accompanied by a change in all of the superficially unrelated properties that are connected to a single setting of a parameter (Radford 1991). The cluster of properties associated with the [- pro-drop] value of the pro-drop parameter was discussed in section 3.2.2.3 of this chapter

hand have access to the underlying structure and develop syntactic rules which are based on verb - final phrase structure.

Moreover, in L1 acquisition of German V-movement and subject-verb agreement are inter-connected [21] (Clahsen 1988, Meisel and Müller 1992). Verb fronting coincides with the appearance of the inflectional formative *st* and the agreement paradigm. Clahsen attributes this to clustering, i.e. the change in one of the properties is accompanied by changes in other properties that are connected with that particular setting of the parameter. He also suggests that to the child 'the crucial step in establishing the agreement paradigm is the availability of *st*' (1988:56), i.e. the 'trigger'. In L2 acquisition, unlike in L1 acquisition, all the inflections of the agreement paradigm are present even in the earliest developmental phase. Therefore, '*st*' does not appear to 'trigger' the appropriate value of the V-movement parameter in German[22] L2. Verb movement does not coincide with agreement morphology in the ILG either. The absence of a noticeable link between these two features prompts Clahsen to claim that they are two independent learning tasks i.e. that there is no clustering in L2 acquisition. Clahsen and Muysken (1986) say that L2 learners may develop alternative hypotheses about the TL with proficiency. But unlike the setting of a parameter these alternative hypotheses do not have a deductive consequence in the grammar which leads to a restructuring of the entire ILG. That is why the L2 grammar does not evidence clustering associated with parameter resetting. Since L2 acquisition is not constrained by UG, in principle, according to this theory it is possible that the L2 grammar would not be a 'natural' grammar.

In so far as proposing that L2 learners, guided by the general learning mechanisms may come up with an alternative hypothesis which is not consistent with parameter resetting, Clahsen and Muysken's (1986) proposal is similar to the one made by Tsimpli and Smith (1991)[23]. Both studies also note that learning agreement morphology does not cause a change in the parameteric value ofverb movement in the L2.

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[21] Clahsen (1988) argues that the acquisition of verb second coincides with the appearance of subject-verb agreement in L1 acquisition but not in L2.

[22] In addition to this Clahsen (1988) goes on to say that adult learners have considerable difficulty in establishing a morphological paradigm of agreement markings on the basis of the inflections available in the input. The evidence appear to indicate that when establishing the agreement paradigm these learners initially take the number of the subject as the crucial feature rather than considering both person and number.

[23] see section (3.1.2.1) of this chapter.

According to this view, functional categories would not be instantiated in the L2 grammar and neither would values to existing functional categories be changed. However, as we shall see in the next section the validity of the claim made by Clahsen (1988) and Clahsen and Muysken (1986) that the ILG is not constrained by UG has been questioned.

3.2.2.4.3 ILG Development is Constrained by UG

Proponents of the view that IL grammars are 'natural grammars' argue that the departure of ILG from the TL grammar is no indication that it departs from human language grammars (duPlessis 1987, Tomaselli and Schwartz 1990, Schwartz 1989, 992). DuPlessis et al. (1987), in reanalysing the data used by Clahsen, argue that the developmental patterns of L2 acquisition may differ from that of the L1 because L2 learners may not necessarily set all of the proposed parameters at the same time. They argue that due to the operation of several interacting parameters, some parameters are reset to those of the German value before others leading to stages of acquisition not evidenced in L1 acquisition, but which are nevertheless permitted in other natural languages. DuPlessis et. al. also suggest that adult learners are initially misled into analysing German as SVO, not because they do not have access to UG, but rather due to the misleading input in the evidence which would suggest that German is head-initial: evidence in the form of the word order in main clauses - SVO, prepositions to the left of PPs and head nouns to the left of relative clauses. However, it is also claimed that although adult learners are initially misled into analysing German as a head-initial language, subsequently they switch to SOV as the base order. Thus, although at a particular stage in acquisition the learners' rules may not resemble those of either the L1 or the target language, the ILG does not deviate from those permitted in natural languages. In the assumption that the influence of the L1 causes misanalysis of L2 data this pattern of development has similarities with the developmental sequence noted by Zobl in the acquisition of AGR in English by Japanese speakers[24].

Robertson (1992) claims that computational problems may lead to the absence of clustering in L2 acquisition. It is also suggested that when the values to FC have to be reset, delays in computing the deductive consequences for the grammar of the

[24] see section (3.1.2.2) of this chapter for details.

changes in the properties of functional heads could result in features which are rare in natural language grammars[25].

The developmental pattern of a FC according to this analysis would suggest two distinct stages: the first where learners misanalyse the overt manifestations and a second where they switch the value of the parameter to that of the target language. The 'switch' may or may not be accompanied by clustering. This pattern implies that learners transfer either FC or at least the features of FC in the L1 to the L2. The fact that L2 learners transfer at least some of the features of those functional categories already instantiated in their L1 is empirically substantiated in the acquisition of AGR and TNS in German by a Spanish first language speaker in the study carried out by Eubank (1992).

Eubank (op.cit.) following Schwartz (1991) claims that L2 learners carry over from the L1 to the ILG the headedness of a functional projection as well as other such values such as the strength of agreement. However, Eubank goes on to say that in transfer of values such as strength of agreement, the AGR in the IL is [x-strong] rather than [+/- strong] with [x-strong] coinciding with [-strong]. Thus Eubank suggests that in learning German, Spanish L1 speakers will assume that functional projections in German are head initial. However, learners are assumed to be able to 'change the headedness, if primary data indicate the need to do so' (Schwartz 1991:298). With regard to the properties of the FC thus carried over from the L1 to the L2, Eubank's claim that the value assigned to the property is [x] implies that specific values are not assigned to the properties of the FC, in other words, the FC that is transferred is underspecified. Thus he argues that when the L1 and the L2 both project the same functional category, the native language influences the development of the ILG by providing labelled initial projections that have unspecified features.

Eubank identifies three stages which learners pass through in the acquisition of agreement and tense inflections in German by a Spanish L1 speaker. In the first stage learner transfers AGR from the L1 together with the head direction but its other features are unspecified. In the second stage he claims that the learner has not as yet analysed the verbs in the input as STEM+AFFIX but that the verb together with the agreement affixes are base generated under V. It is during the third stage that the verb

[25] Robertson also goes on to state that 'clustering of properties consequent upon a particular parameter-setting in natural language grammars is determined by the operation of diachronic constraints which exert pressure towards systemic consistency in the grammar. These diachronic constraints do not operate in L2 acquisition'(1992:11).

is analysed into separate morphemes and concords with the subject. Eubank goes on to state that the motivation for 'stripping' the affix from the stem arises from the recognition at stage 2 that there is relationship between the various forms of the verbs and the types of subjects. Once the learner realises 'that the relationship is based on affixation, the standard-like person/number hypotheses can be identified' (Eubank1992:238) Therefore in this case the inflections act as the trigger for the FC.

According to these researchers therefore, although the development of FCs in a L2 may not parallel that of L1 acquisition, it does not preclude guidance by UG. More recently, in a reanalysis of the data from the morpheme acquisition studies (Bailey, Madden and Krashen 1974, Larsen-Freeman 1975, Krashen 1977) under the current functional categories theory, Zobl and Liceras (1994) too arrive at a similar conclusion. They claim that the acquisition of functional categories in the L2 differs from that in the L1 in several different ways. In L1 acquisition the emergence of functional categories and their exponents are ordered in a category specific fashion with nominal categories i.e. Determiner preceding the verbal categories - INFL. In contrast in L2 acquisition a cross-categorial development of FCs is observed. Further, functional projections are claimed to the available from the beginning unlike in L1 acquisition. In the projection of functional categories, in L1 acquisition the inflectional morphemes and lexical (free) morphemes are said to play a co-equal role. In L2 acquisition on the other hand, the morpheme order suggests that free morphemes rather than the affixes represent the first instantiation of the FCs. (This is similar to the observation made by Vainikka and Young-Scholten (1994) who claim that in L2 acquisition functional categories are triggered by elements which can be classified as free morphemes rather than by affixes as in first language acquisition.) Therefore in L1 acquisition it is not the nature of the overt manifestation, that is, whether it is bound or free, that determines its rank order but the category which it represents. By contrast, in L2 acquisition the ranking depends on the nature of the morpheme with free morphemes preceding the bound regardless of the categories to which they belong.

Thus, the developmental patterns noted by Eubank (1992) Schwartz (1991) and Zobl and Liceras (1994) show that, unlike in L1 acquisition, functional categories are available from the earliest stages in L2 acquisition. In the studies by duPlessis et. al. (1987) and Zobl (1990) learners are seen to transfer FCs from the L1 to the L2 which may result in the misanalysis of the L2 data. Such a situation does not arise in the developmental sequence outlined by Eubank (1992) since learners transfer only the

Functional projection with unspecified features. These studies (duPlessis et.al. 1987, Schwartz 1991, Eubank 1992) also claim that L2 learners are able to change the L1 values of the FC in the L2 on the basis of positive evidence.

3.2.2.4.4 Summary

On the basis of existing studies in IL development it is possible to outline different developmental sequences for FCs in the L2 grammar.

1. According to the hypothesis that the functional module is unavailable in L2 learning, an initial stage where the overt manifestation of the FC are unanalysed, is followed by a stage where the overt features are re-analysed. Since parameter resetting does not take place the grammar should not evidence the restructuring associated with parameter resetting. i.e. there will be no evidence of clustering or of triggering. Rather, the different manifestations of the FC will be given a piece-meal solution.

2. Researchers who argue that the development of all FCs in L2 acquisition is similar to the acquisition of FCs in the L1 set out a three stage developmental sequence. This consists of a bare VP stage followed by an unspecified FP and a third stage with a fully specified functional category.

3. According to studies which claim that "UG is still available and ..IL of L2 learners fall within the range of grammars permitted by UG" (duPlessis et al. 1987:57) too there is a three-stage developmental process: an initial stage where the FC and some features such as head direction are transferred from the L1, followed by an intermediate stage with an underspecified FP and final stage with a fully specified FC. During the initial stage the L2 data may or may not be misanalysed.

The developmental stages outlined in (2) and (3) are similar in that there is a three stage sequence in the development of the FCs. These stages differ with regard to the state of the ILG in the initial stage: one claims that learners transfer FC from the L1 while the other argues for a bare VP stage. There are similarities in stages two and three. Both suggest that an underspecified functional projection precedes the final stage where the fully specified AGR emerges.

All of these studies suggest that the sequences in L2 acquisition differ in some way from the sequences in L1 acquisition. They also claim that certain aspects in L2 acquisition such as the early appearance of overt morphological manifestations, and

difference in the head direction of the Functional projection from the target language, are not found in L1 acquisition. The evidence with regard to clustering is inconclusive. Apart from Eubank who claims that inflections act as the trigger for the FC, others claim either a different trigger (Vainikka and Young-Scholten 1994, Zobl and Liceras 1994) or no trigger at all (Clahsen 1988).

Except in the very recent study by Vainikka and Young-Scholten (1994), other existing studies do not make a distinction between FCs that need to be 'activated' for the L2 and FCs whose values need to be 'reset'. In the studies carried out by Eubank (1992) and Schwartz (1991) on the acquisition of FCs in the L2, the FC in question has been instantiated in the L1 and the L2. None of these studies look at the properties assigned to the FC at near-native level and therefore the nature of the underlying grammar at ultimate attainment.

The next section will examine how functional categories are projected in the L2 grammar and what diagnostics can be used to conclude that a particular FC is instantiated in the L2 grammar.

3.2.3 Projecting a FC in the L2

Opposing points of view have been put forward in language acquisition research as to the mechanism which is instrumental in instantiating a FC: the Lexical Projection Hypothesis suggests that lexical learning, viz. the overt manifestation, triggers the instantiation of the FC whereas the Functional Projection Hypothesis maintains that although the identification of the head could be the trigger for the syntactic category, phonetic manifestation is possible only after the instantiation of the maximal projection (Demuth 1992). According to the former, the functional head must be lexically acquired to license the creation of the maximal projection; in the latter, the building of syntactic structure precedes the phonetic realization of functional heads.

Robertson (1992) following Lebeaux (1988) suggests that once the functional heads are lexically acquired, the projection of a X" is licensed.[26] Thus, analysing the features of the abstract functional heads in the input will lead to a restructuring in the rest of the grammar which is computed by the top-down mechanism. In other words the overt manifestations of functional heads in the input data would trigger the setting

[26] This is in keeping with the 'PF-Identification Principle' proposed by Tait and Cann (1990) which stipulates that Functional heads must be lexically acquired in order to license the creation of maximal projections.

of the parameter. Other researchers too claim that the emergence of syntactic properties is determined by the acquisition of the properties of lexical items. Eubank (1992) on analysing the data obtained from the longitudinal study of a Spanish first language speaker learning German claims that the "emergence of agreement and tense-related morphology brings about a reorganization of the L2 syntactic representation" (1992:225). According to Verrips and Weissenborn (1992) too, although agreement morphology is not the trigger for the emergence of FCs, the lexical element in CP is. Therefore in all of these hypotheses structural changes are triggered by the acquisition of lexical and morphological elements i.e. lexical learning precedes syntactic learning.

On the other hand, Demuth (1992) argues that the phonetical realization is possible only after the emergence of the maximal projection. She separates lexical learning into 'identification' and 'realization' and suggests that the creation or instantiation of the functional category may depend on the former but not the latter, in other words, that the emergence of a functional category is possible only once its head has been identified, even though not phonetically realized. Vainikka and Young-Scholten (1994) claim that in both L1 and L2 acquisition a FC is instantiated when the potential head is identified and "once a head is identified the learner will posit argument positions (provided by X'-theory) if positive evidence is found" (Vainikka and Young-Scholten 1994:268).

Thus, the issue of whether lexical learning precedes syntactic learning or follows it, is debatable in language acquisition research.

3.2.3.1 Diagnostics for the Projection of a FC in the L2

What constitutes evidence that a functional category has been instantiated in the ILG?

In much of L1 acquisition research the overt phonetic manifestation of the functional projection is taken as an indication that the relevant FC is present in the underlying grammar (Radford 1990). Given that an element moves only if it is required by some general principle of grammar (Chomsky 1986a), the overt presence of inflections can be interpreted as indications that head-to-head movement of the verb has taken place in the ILG i.e. that the Stray Affix Filter[27] provides the motivation for verb movement. The link between overt inflections and the underlying functional projection

[27] See chapter 2, section 2.1.4.1 for a discussion of the requirements of the Stray Affix Filter.

is also endorsed in the PF licensing principle which "requires a syntactic projection to have some lexical, by which we mean phonological, realization in a language" (Tait and Cann 1990:3) since it is the phonetic realization of heads that serves as the trigger for the building of syntactic structure.

Hyams (1992), on the other hand, opposes the view that one can argue from the absence of particular lexical items in the child's language to the absence of the grammatical category in her grammar. This claim is based on verb movement, word order, clitics and Case assignment in child language data from Italian, German, Dutch, Swedish and Icelandic. Schwartz too queries the use of "....overt verbal inflection as the sole diagnostic to determine finiteness," and claims that by doing so 'significant generalisations might be overlooked" (1991:291). It is thought that affixes in early ILG may not be base generated under functional heads but may be unanalysed and base generated with the verb under V (Schwartz (op.cit.), Eubank 1992). However, Schwartz goes on to say that the abstract features[28] of a FC, which are not overtly displayed in the inflectional morphology on the verb (as the case with Tense in Chinese) could be used to determine its presence in the ILG. Thus, it is necessary to 'consider verbal inflection in conjunction with verb placement - both what is found and what is not' (1991:291). She suggests that the absence of overt morphological manifestations in the ILG could be attributed to a difference between the abstract feature specifying the functional category, the possibilities for its morphological spellout and the acquisition of the correct spell-out.

Consequently, in order to determine whether a particular functional category is present in the L2 grammar, the abstract features of the FC, such as word order etc., must be taken in conjunction with overt manifestations such as verbal inflections. Therefore, in the case of the acquisition of AGR in English, apart from the overt morphological presence of the inflections other structural changes in the grammar, such as the licensing of null subject and the position of the verb in relation to adverbs, would have to be taken into consideration.

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[28] Schwartz (1991) suggests that verb movement, apart from fulfilling the subcategorisation requirements of inflectional suffixes, is also motivated by abstract features of the FCs.; for example the aspect and modality features of tense which are inherently connected with the verb.

3.3 Learnability in SLA

Learnability has to account for both the success and the developmental stages in language acquisition (Pinker 1984), that is, explain what makes a language learnable when the learner is exposed to language input. It is assumed (Pinker 1984, Quintero 1992) that learners have available to them two types of principles: language principles and learning principles. Language principles, are those that provide information about language structure. Learning principles, on the other hand, provide the strategies necessary to interpret specific target language structures, thus enabling the learner to develop increasingly complex hypotheses about the TL input resulting in development. The developmental stages are therefore derived from learning principles that delimit what can be noticed and interpreted in the input (Quintero 1992). For example, learnability theories proposed for L1 development include the maturational hypothesis (Radford 1990), the Conservatism Thesis (O'Grady 1987) etc. which provide explanations as to why a child acquires a particular structure when she does.

As seen in section 2.2.1, most studies in SLA find the underlying grammars of near-native speakers different to those of native speakers. They also note that the sequence of development in ILG is different from L1 acquisition. Therefore, in contrast to learnability theories in L1 acquisition, which need to explain the equipotentiality in terms of success, rate and learning difficulty, L2 acquisition theory has to account for differences in the developmental sequences, the inability to achieve a competence similar to native speakers as well as explaining the logical problem.

Certain conditions such as the presence of negative evidence, affective factors and the knowledge of one or more languages set L2 learning apart from first language learning. Apart from this there is a consensus in the studies in SLA research examined so far that the primary feature that makes 'learning' a second language different from learning the first language is the availability of a fully specified grammar. For example, if we look at the acquisition of AGR in English from a parameter (re)setting perspective, Greek and Japanese first language speakers set out at different starting points. In the case of Greek learners of English (from the Tsmpli and Smith 1991 study), the movement is from a language that has 'rich' agreement and a [+ pro-drop] parameter to TL that has a 'poor' AGR and therefore a [- prodrop] parameter. With Japanese learners (in the study by Zobl 1987) on the other hand, the movement is from an AGR-less [+ pro-drop] L1 to a [+AGR], [- pro-drop] L2. These researchers arrive at different conclusions as to the underlying grammar of the two sets of learners; the Greek learners are deemed not to have 'reset' the values of the FC while

the Japanese learners appear to do so (that is, activate the FC). This seems to indicate that success in (re)setting the values of parameters depends on the particular values assigned to a parameter in the L1 and the L2 in question. This coincides with the view advocated by Quintero where second language acquisition is perceived of as process in which

> "...L1-specific language principles (*rather than universal language principles*) interact with the learning principles to arrive gradually at a representation of the second language input. Consequently, the L2 representation is coloured by the L1 source defining the possible structures ....." (1992:43).

Diverse explanations have been offered as to *how* the abstract properties of the learner's L1 may assist or impede progress in the L2.

In this section we will explore some current learnability theories on the ways in which the L1 parameter setting can influence L2 acquisition.

3.3.1 Markedness

In research related to principles and parameters the definition of markedness adopted is connected with the state of the value of parameters at the initial stage in L1 acquisition. The idea is that certain parameters rather than being open at the initial state, have a preset initial, or unmarked value. That is to say, in parameters that have an unmarked as well as a marked option, the child assumes the unmarked or default value applies in the language she is learning. The marked value on the other hand, requires specific positive evidence. Learnability considerations are invoked in order to decide which option of a parameter is marked and which is unmarked. For example, if we take the Morphological Uniformity Parameter (MUP) Hyams (1992) argues that a morphologically uniform [+MU] verbal paradigm is less marked than a morphologically non-uniform [-MU] verbal paradigm. A morphologically uniform verbal paradigm, [+MU], is one in which all forms of the verb are uniformly inflected as in Italian, or none are, as in Chinese. In a morphologically non-uniform verbal paradigm [-MU] some forms are inflected while others are not, as in English, where the main verb takes an inflection only with a 3ps.sg. subject. The reasons for arguing that uniformity [+MU] is a more restrictive hypotheses than non-uniformity [-MU] are,

> "If the child assumes that no forms are inflected or that all forms are, positive evidence will tell her otherwise. If on the other hand, one assumes that one's

language is 'mixed' when in fact it is not, no number of inflected or uninflected tokens will suffice to induce a reanalysis" (Hyams 260:1992).

That is to say, if the child starts out with a morphologically uniform verbal paradigm and the TL has a morphologically non-uniform verb paradigm, she will notice either the inflected or uninflected items as the case may be. To illustrate with an example, if the default assumption of [+MU] holds that no form of the verb is inflected, encountering an inflected form will suffice to trigger a resetting to the [-MU] value. On the other hand, if the child starts out with an initial assumption that her language has a mixed verbal paradigm, neither the presence of inflected forms nor uninflected forms will be sufficient to lead to a loss of the [-MU] value since both inflected and uninflected forms are consistent with the [-MU] value.

In L2 acquisition however, if as in the learner's L1, the parameter is set to the marked option, primary language data (PLD) in the L2 cannot induce a resetting because all forms in the unmarked setting, in this case the inflected forms of the verb, will be compatible with the marked [-MU] setting. The only way the learner can revert to a unmarked value would be via negative evidence. It has however, been argued that L2 learners too, like L1 learners make use of postive evidence only (Schwartz and Gubala-Ryzak 1992) (see footnote 5 of this chapter for the availability of negative evidence in L2 acquisition).

With regard to the pro-drop parameter on the other hand different positions have been adopted as to which setting, [+PD] or [-PD] constitutes the unmarked value. According to learnability considerations, [-PD] is the unmarked option (White 1989). If the learner assumes that the language she is learning is a [+PD] language there is no positive evidence which can disconfirm this hypotheses since sentences with and without an overt subject are grammatical in a [+PD] setting. If the initial assumption is [-PD] positive evidence in the way of sentences with null subjects will suffice to reset the parameter. Those who argue that [-PD] is the default value (Hyams 1986) cite evidence from child language acquisition, where a null subject stage precedes the overt subject stage irrespective of whether the target language is [+PD] or [-PD]. Under this formulation of the parameter, expletive subjects are conceived of as the trigger that resets the parameter from [+PD] to [-PD].

3.3.2 Generalization and Preemption

Two further learning principles that are assumed to apply in language acquisition are the Principle of Generalization and the Principle of Preemption.

Some degree of generalization is necessary for learning to take place. The process of generalization as stated by Slobin, 'avoid exceptions' (1971:108) results in maximal generalization. If a general rule is extended to items not covered by the rule it is considered to be overgeneralisation. Based on generalization once a structure is learned, it may be extended to similar lexical items. The overgeneralisation of the past tense morphemes in English, in this manner has been examined by MacWhinney (1990). Slobin (1971) observes that children acquiring morphologically rich and uniform first languages sometimes over-extend an affix within a particular verbal paradigm.

In order to counter the problems of overgeneralisation the learning principle of Preemption or loss (Pinker 1984) is proposed. This principle requires that when a structure is generalised to related lexical items without direct evidence from the input, the hypothesis be tentative. That is, if there is subsequent input in the evidence for a form different to that which was generalised, the tentative hypothesis will be discarded.

Based on these learning principles Quintero (1992) proposes that from an initially conservative hypothesis based on the assumption of uniqueness[29] of language structures, learners will gradually build up a full representation of the target language through a process of progressively more complex cumulative development. It is also said that the extension of structures through the lexicon via the process of generalization will result in correct generalizations as well as overgeneralizations. The overgeneralizations are thought to be eventually eliminated through preemption by further input.

Next we will look at how these learning principles interact with the L1-specific language principles both to process the L2 input and to form a representation of its grammatical structure.

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[29] A description of the Uniqueness Principle (Slobin 1971, Pinker 1984) is given in 3.3.3 A of this chapter.

3.3.3 The Influence of the L1 Parameter Settings on L2 Acquisition

The relationship between the L1 and the L2 parameter settings in relation to a particular parameter can be in one of two ways: one, where the values are in a unmarked/marked relation to one another, and two, where one value has to be replaced by another. In L2 acquisition theory, predictions have been made for the facility as well as the order in which constructions are acquired, when the parameter setting of the L1 and L2 coincide with either one or two (Eckman 1977, Phinney 1981, Mazurkewich 1985, White 1989).

A. Replacing the L1 Value with the L2 Value

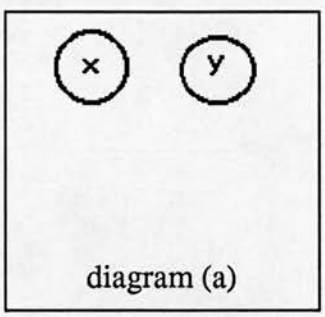

diagram (a)

Experimental data shows that when the L1 value has to be replaced by the L2 value, as illustrated in diagram (a) above, learners are able to move successfully from 'x' to 'y' or vice-versa. For example, in a study carried out by Rutherford (1983) the learners are able to move from a head final L1 (Japanese) to a head initial L2 (English) on the basis of positive evidence. In first language acquisition according to 'the Uniqueness Principle' (Pinker 1984, Slobin 1971) any particular semantic concept will have only one syntactic or morphological realisation, and consequently the child knows when to replace one analysis with another (White 1989b). The data from the study carried out by Rutherford (op.cit) indicates that the Uniqueness Principle is operative in L2 acquisition too.

B. The L1 and L2 Values are in a Unmarked/Marked Relationship

When the values of a parameter are in a unmarked/marked relation to one another the 'child's initial assumption constitutes the unmarked case ... in the absence of counter evidence' (White 1989a:2). As discussed if the initial assumption is the marked value, positive evidence would not suffice to reset the parameter, and the resultant grammar will lead to overgeneralisations. In L2 acquisition, however, the suggestion that

learners automatically assume the unmarked option, regardless of the L1 parameter setting has been questioned (White 1977, 1989). White predicts the following developmental patterns based on the L1 and the L2 settings of a particular parameter. If the setting of a particular parameter in the L1 is unmarked and the same parameter in the L2 has either an unmarked or marked setting, the learner will initially assume the unmarked option, but have no difficulty in acquiring the marked value. If, however, the setting of the L1 is marked, the learners initial assumption will also be marked regardless of the L2 value. She goes on to say that this assumption is 'likely to persist, to remain as a candidate for fossilization (Selinker 1972) since a resetting would require negative evidence[30]. Thus, for the L2 learner movement from the unmarked to the marked value is possible, but movement from the marked to the unmarked is difficult (if not impossible).

The studies carried out on the pro-drop parameter (White 1985, 1986, Phinney 1987) which were discussed in detail in section 3.2.2.3. of this chapter bare out these predictions. To illustrate the point with regard to markedness however, we shall summarise the findings. In the study carried out by White (1986) the acquisition of English which has a [- pro drop] value by Spanish and French L1 speakers was examined. Spanish has a [+ pro drop] value while French is similar to English in that it has a [- pro-drop] value. Consequently, Spanish allows null subjects but English and French do not. The results from the study show that while French learners rejected sentences with null subjects in English, Spanish learners did not. Since the Spanish value is the marked and the English value is the unmarked, as predicted by White, the movement from the marked setting in the L1 to the unmarked setting in the TL was more difficult than the movement of French L1 speakers who moved from an unmarked setting in the L1 to the unmarked setting in the TL. The study by Phinney (1987) bares out White's second prediction that movement from an unmarked setting in the L1 to a marked setting in the TL is possible. Phinney's study too focused on the pro-drop parameter in the acquisition of Spanish by English L1 speakers. Here, the learners were required to move from an unmarked setting in the L1 to a marked setting in the TL. The results from the study show that English learners of Spanish had no difficulty in accepting null subject sentences, thus substantiating White's hypothesis.

Another situation studied in L2 acquisition is when a particular " ...parameter ... has more than 2 values meeting the Subset Condition" (White 1989b:149). The

[30] See footnote (3) in this chapter on the ability of L2 learners to make use of negative evidence.

Governing Category Principle has five values and Korean exemplifies the widest superset value while English has the smallest subset value. That is, English requires a reflexive to be bound within the same clause regardless of whether the clause is finite (4)a or non-finite (4)b.

(4) a. $John_j$ said that [$Fred_f$ washed $himself_{f/*j}$]

b. $John_j$ wanted [$Fred_f$ to wash $himself_{f/*j}$]

In other languages, for example Russian, reflexives behave differently depending on whether they occur in finite or non-finite clauses; the governing category must be finite. That is, in sentences such as (4)a Russian is similar to English but in sentences such as (4)b *himself* can refer to either *Fred* or *John.* In parallel sentences in Korean, in both (4)a and b the antecedent of *himself* can be either *Fred* or *John* since the governing category is the main clause. Finer and Broslow (1986) investigated the acquisition of reflexives in English by Korean L1 speakers. The task used was picture identification and subjects had to point to the character in the picture they thought most appropriate for the sentence they heard. The results show that the learners did not transfer the marked value from the L1 nor did they adopt the value which would yield the smallest grammar (which would, in this case, have coincided with that of the L2 - English) but arrived at a value that was intermediate. That is to say, in English, the Korean learners made a distinction between finite and non-finite clauses in deciding the antecedent of the reflexive, which is the value in Russian. According to our characterization as to the nature of the underlying grammar of non-native speakers, the adoption of a value that is neither of the L1 nor of the L2 in this way, would suggest that the underlying grammar of the subjects in the Finer and Broselow's study is divergent [+UG].

A similar result is found in a study carried out by Thomas (1989) in the acquisition of Governing Category Principle by Spanish learners of English. However, in this case unlike with the Korean learners where the movement was from a language which allows non-local binding to one that does not allow it, Spanish and English both require local binding. But the Spanish subjects accept non-locally bound sentences in English, once again arriving at a parameter setting not exemplified by the L1 or the L2. Progovac and Conell (1991) in discussing the data from these two studies suggest that the misanalysis of the input in English by both Korean and Spanish learners is a result of the interaction of the existing grammar with UG and the input. In line with current analyses, the possibility of allowing non local binding is linked up with AGR. Languages which realise AGR do not allow non-local binding while in languages

without AGR such as Korean and Chinese, long-distance binding is possible across any clause boundary. Progovac and Conell (op.cit.) suggest that Spanish learners are misled into thinking that English lacks AGR because agreement is impoverished in comparison to Spanish. Therefore they accept non-local binding in English although it is not possible in the L1. To the Korean and Japanese learners on the other hand, agreement in English appears rich in comparison to the L1. Although they correctly analyse English as [+AGR] they assume that like Russian non-local binding is not permitted in clauses with AGR, but permitted in clauses without AGR. Thus in both cases due to the interaction of UG and the L2 input with the L1 grammar, the input is misanalysed leading to the adoption of a parameter setting that is found neither in the L1 nor in the L2.

In all of these explanations a primary reason given by those who propose that L2 learners have access to UG but arrive at a mental representation which is different from that of native speakers, point to adult learners' inability to make appropriate use of the positive evidence available in the input due to the influence of the first language. We shall look at the explanations offered in second language research for the inability of L2 learners' to make use of the available positive evidence.

3.4 The Role of Positive Evidence in L2 Acquisition

Within the parameter setting framework it is standardly assumed that a particular value of a parameter is triggered by the input in the TL. According to the definition given by Gibson and Wexler (1993) the data which acts as the trigger is data that can be analysed if and only if the target language parameter is set correctly. That is, a particular syntactic element in the grammar which points directly at the correct settings of the parameters. We will first look at the 'triggers' or elements in the syntax that are said to bring about a change in the setting of a parameter. Then we will examine how PLD is used in L2 acquisition.

3.4.1 'Triggers'

The existence of triggers has been assumed particularly for marked value of parameters. Given that "there can be no trigger for the subset [unmarked] value of a parameter, since, by hypothesis, all data that are acceptable in the subset parameter setting are also acceptable in the superset [marked] parameter setting'(Gibson and Wexler 1993:409) particular evidence would be needed only in the case of the marked value.

In order to explain how learners make use of the triggering data Gibson and Wexler (op.cit) suggest a learning algorithm: Triggering Learning Algorithm (TLA) which stipulates that,

> "Given an initial set of values for *n* binary-valued parameters, the learner attempts to syntactically analyse an incoming sentence *S*. If *S* can be successfully analysed, the learner's hypothesis regarding the target grammar is left unchanged. If however, the learner cannot analyse *S*, then the learner ....changes the value associated with the parameter and tries to reprocess *S* using the new parameter value. If analysis is possible, the parameter value change is adopted. Otherwise the original parameter value is retained." (Gibson and Wexler 1993:409)

Thus, the value of the parameter is changed *only* if the input sentence is not analysable in the current grammar.

3.4.1.1 Triggering Data

Lightfoot (1989) argues that only a subset of the large amount of data a child is exposed to, acts as the 'triggers' that brings about language development[31]. In L1 as well as L2 acquisition literature different syntactic elements have been suggested as the triggering data responsible for instantiating the functional category AGR and setting its values.

Hyams (1986, 1987) suggests that expletive subjects 'it' and 'there' act as the trigger to reset the value from [+PD] to [-PD] [32] in the case of children learning a [-PD] L1.

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[31] Lightfoot claims that the child can '...learn everything from main clauses (degree-0 learnability) plus a little bit' (1989:327). He illustrates this with examples from bounding nodes in English and Italian, government in Dutch and AGR in Chinese.

[32] The null subject or the pro-drop parameter is closely linked with the properties of AGR. It is standardly assumed that null subjects in pro-drop languages " the European type" is licensed by AGR. Rizzi (1986) lists the following cases:
a. No occurrence of pro (English)
b. pro = non-argument (German)
c. pro = non-argument and quasi argument (Yiddish)
c. pro = non-argument, quasi argument and referential argument (Italian)
These languages can be distinguished on how pro is licensed and identified:
a. AGR does not license pro (English)
b. AGR licenses pro, but identifies no features (German)
c. AGR licenses pro and identifies number (Yiddish)
d. AGR licenses pro and identifies number and person (Italian)

Hilles (1986) extends this to L2 acquisition. She found, in the IL data of a Spanish first language speaker learning English, that the decline of null subjects coincided with the appearance of pleonastic pronouns. The change was also accompanied by a restructuring in the rest of the grammar to coincide with the [-PD] value. This is seen as confirmation of Hyams' hypotheses that pleonastic pronouns trigger the resetting of the pro-drop parameter in L2 acquisition. However, other studies (Phinney 1987) have suggested that expletive pronouns may be a consequence rather than a cause of parameter resetting, and that in SLA something else must serve as the trigger for resetting the value from one to the other.

Clahsen and Penke (1992), following Pinker (1984), on the basis of German child language acquisition, argue that a functional category is triggered by the discovery of the relevant inflectional morpheme. A similar claim is made by Eubank (1992) for L2 acquisition. He analyses data obtained from a longitudinal study of a Spanish first language speaker learning German and claims that the 'emergence of agreement and tense-related morphology brings about a reorganisation of the L2 syntactic representation' (1992:225). The accompanying changes observed in the ILG are in the placement of finite and non-finite verbs, the distribution of the sentential negator, the development of agreement and tense and the distribution of adverbial elements. Thus, according to Eubank the overt inflectional morphology of AGR alerts the learner to the existence of AGR as well as its properties.

Verrips and Weissenborn (1992) postulate that agreement morphology does not trigger the properties of AGR, but only trigger verb movement to existent positions. Their argument against verbal inflections acting as the trigger for resetting of the null subject parameter is based on the fact that in L1 acquisition of French and German, the emergence of verbal inflections and the disappearance of the null subject are not time related. In French L1 acquisition null subjects co-occur with analysed verbal morphology i.e. the use of correct AGR and TNS features. They go on to suggest that

> ".. it is context with a lexical element in CP, either a complementizer or a Wh-phrase (but not a verb) that constitutes the unambiguous triggering data that allow the child to set the null-subject parameter to its correct value." (Weissenborn 1992:288)

The argument for claiming that a lexical element in CP is instrumental in setting the value for the null subject parameter is connected with the identification of null subjects.[33]

3.4.2 PLD in Second Language Acquisition.

According to the L2 acquisition model proposed by White (1985, 1989) and other researchers, L2 input is initially analysed using L1 parameter values. Thus unlike L1 acquisition the L2 learner may already have a value for the particular parameter that needs to be revised. This brings us to the question whether the PLD, which is sufficient to 'trigger' a parameter in L1 acquisition, is sufficient to enable the L2 learner to recover from 'an L1 induced misparse' (Zobl 1986).

Zobl (1986) suggests that in L2 acquisition if the learner's L1 instantiates the more marked value and the TL the less marked value, it would not be the simplest data but data which could refute the L1 value that would lead to a recovery of the value appropriate to the target language. It would appear that the positive evidence required to trigger a resetting in L2 acquisition would differ from that which instantiates a value in L1 acquisition.

More recently, Vainikka and Young-Scholten (1994) too suggest that L2 learners may use as 'triggers' elements which are different to those used in first language acquisition. It is argued that the triggers first language learners use are not the only possible triggering elements and that L2 learners are able to find alternate PLD that assign the parameters values appropriate to the TL. Vainikka and Young-Scholten claim that in L1 acquisition of AGR, affixes serve as triggers while in L2 acquisition, it is the 'elements which can be classified as free morphemes which operate as triggers' (1994:297). They propose that differences in the triggering elements may account for the differences between L1 and L2 acquisition, in the schedule of development from one state to the next.

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[33] One possible way in which the null thematic subject can be identified in null subject grammars is via a topic chain (Huang 1984). If either the head of CP in embedded finite clauses, or the Spec of CP in matrix clauses is filled by a lexical element, there would be no Topic position available to which the subject can be moved. This would preclude the identification of null thematic subject via a topic chain. If a null subject occurs in this context, the only possible source of identification would be from within, via a 'rich' AGR in INFL (as in Italian or Spanish). Thus, according to Huang, it is the lexical element in CP together with a null subject that tells the child that the target language has a 'rich' AGR that can identify a null subject. If however, null lexical subjects are precluded when there is a lexical element in CP, then AGR would not to be a licit identifier of null subjects i.e. AGR would not be 'rich'. The resultant grammar would therefore be [-PD].

Another view with regard to PLD in SLA is put forward by Schwartz and Sprouse (1994). They support the view that L2 learners may be unable to 'reset' certain parameters due to the rarity of certain pieces of PLD. In L2 acquisition it is the reconciliation of PLD with the grammar that forces a parameter to be revised and re-revised. However, in some cases "certain hypotheses that 'need' to be revised cannot be revised or will in practice only seldom be revised because of the absence or rarity of certain pieces of PLD" (Schwartz & Sprouse 1994:319). It can be assumed that PLD that is sufficient to 'reset' a parameter from a marked to an unmarked settting would be rare or even non-existent in natural language grammars.

On the other hand, in certain instances eventhough the PLD exists, learners 'filter' (Hyams 1986) it out. Based on evidence from the acquisition of unaccusative verbs in Italian by English and French L1 speakers, Sorace (1993) claims that the parameter setting of the L1 affect the way learners 'take in' the positive evidence. In this case, although the positive evidence is available in the input, it is incorporated in to the ILG only by the French L1 speakers who had to revise their L1 value and not by the English L1 speakers who had to instantiate unaccusativity in the L2. Thus, the inability of learners whose L1 did not instantiate the particular property, to notice the available PLD has led Sorace to propose that 'the availability of positive evidence of a property P in the L2 input may not be a sufficient condition for acquisition to take place" (1993:22).

A further possible way in which the L1 parameter settings influence the use learners make use of the PLD in the L2 is linked to learning principles and the motivation for change in the ILG. It was suggested earlier that a learner changes the value of a parameter only if the input is not analysable in the current grammar. Given that the learner initially uses the L1 values of a parameter to access the L2 data, if the L1 instantiates the marked value and the L2 the unmarked, the learner will not perceive a need to revise the L1 value since the L1 value would necessarily allow the L2 input to be analysed.

Therefore, the parameter settings of the L1 can not only influence the way L2 learners perceive the relevance and salience of the PLD but may even dicatate what PLD in the L2 is sufficient to trigger a 'resetting'.

Uziel (1993) states that to study the acquisition of one parameter setting in isolation is often not possible since one parameter setting often affects (or is affected by) other parameter settings in the same language. Therefore even though PLD is available,

learners at a given developmental stage will not be able to make use of it until the necessary precursors are acquired.

To summarise, the available acquisition research shows that the inability to make use of PLD in L2 acquisition need not stem from the unavailability of UG. Different initial assumptions could result in a) the inability to 'notice' the available PLD, b) not perceiving a need to revise the L1 value or c) non availability or rarity of PLD that can refute the existing over-inclusive grammar.

In all of these explanations the inability to incorporate the positive evidence is attributed to the influence of the first language. Therefore it would appear that the parameter settings of the learner's L1 affects the ability to incorporate the PLD in L2 acquisition. In order to abstract away from the influence of the L1 and to find out whether L2 learners have direct access to UG it is necessary to look at a parameter that is not activated in the L1 but is activated in the L2.

3.5 Conclusion

We set out to explore the nature of L2 competence at ultimate attainment and during the developmental stages in existing second language research in order to provide a base for our own investigations.

Within the Functional Parameterisation Hypothesis, the attainment of an underlying L2 grammar comparable to that of native speakers means activating and assigning values to FCs as appropriate to the target language. Since L2 learners already have a fully specified FC system in their L1, we distinguished between two types of acquisition a) FCs that have to be 'activated' in the L2 (as they are not realised in the L1), and b) FCs whose properties need to be 'reset' in the L2 because the properties differ from the L1.

Resetting requires a change of existing values caused by the disconfirmation of existing hypotheses. Activating involves a change in the existing grammar via the instantiation of new features.

The Principles of UG being universal and invariant, are available in any language acquisition process. The parameterised aspects, on the other hand, may be subject to maturational constraints. We went on to examine whether L2 learners have access to the parameterised aspects of UG and the implications access to the prameterised aspects have for the nature of near-native competence. The existing studies do not

yield an unequivocal interpretation of access to parameterised aspects of UG in SLA. On the basis of these studies we concluded that the underlying grammar of near-native speakers can, with regard to a particular FC, be complete, divergent or incomplete depending on whether or not this FC is present in the underlying grammar. We made a further qualitative distinction with respect to the nature of a 'divergent' competence: divergent [+UG] and divergent [-UG], based on whether L2 learners have access to FCs not manifested in their L1. If a FC is not activated in the L1, the non-native grammar with regard to the FC can be 'complete', 'divergent [+UG]' or 'incomplete' corresponding to whether the near-native grammar activates the FC with values similar to the L2, or activates the FC not realised in the L1 but with values different to the L2, or does not activate the FC not realised in the L1. If the values to the properties of a FC need to be reset in the L2, the underlying grammar at near-native level may be 'complete', 'divergent [+UG]' or 'divergent [-UG]' depending on whether the values are reset to match the TL, learners arrive at values different to the L1 and the L2, or whether learners retain the L1 values, respectively. We concluded that if the non-native competence is incomplete or divergent [-UG][34] the underlying grammar is essentially similar to the L1. That means, new FCs are not activated and values to existing FCs are not changed. The overt manifestations of the FCs however are reanalysed at more proficient levels to avoid violating the principles of UG. On the other hand, if the near-native competence is complete or divergent[+UG], this indicates that L2 learners have access to the UG lexicon. In other words, both activating new FCs and resetting values to existing FCs are possible in SLA.

We also looked at the development of FCs in the L2. The existing empirical studies provide conflicting evidence. On the one hand, it is suggested that learners initially use L1 parameter values to analyse the L2 input and therefore second language learners transfer FCs and/or their properties from the L1 to the L2 in early ILG. On the other, it is claimed that learners do not transfer FC or properties from the L1 even when both languages instantiate the same FC, but rather manifest an acquisition sequence similar to first language acquisition. However, studies which argue that functional projections are present from the earliest stages in L2 acquisition as well as studies that claim that functional categories are gradually built up on the basis of input concur that the acquisition sequence is not identical to that observed in L1 acquisition, in that bound/free morphemes do not play a similar role in the development of functional categories in L1 and L2 acquisition.

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[34] As discussed previously, [-UG] in this case does not mean the violation of UG, rather the unavailability of aspects not activated in the L1

It was also noted that two different patterns of development have been suggested in the literature. Of these, the gradual and cumulative development is associated with general learning mechanisms and the discrete changes that require a restructuring in different parts of the grammar is linked to parameter resetting and UG.

The existing research which focuses on activating and resetting parameters in L2 acquisition shows that resetting parameters is more difficult than setting values to parameters for the first time in L2 acquisition (section 3.1.2.1).

Most of the studies examined show that the learners' L1 exerts a pervasive influence on the pattern of development and the nature of the underlying grammar at ultimate attainment. They also shows that the relationship between the L1 and the L2 parameter settings may influence IL development in the way PLD is perceived and incorporated into the L2 grammar. Based on these finding therefore, in this study, we will adopt the position that the final state in the native language grammar in some way forms the initial stage of the L2 grammar.

To reiterate the issues that we explore in this study: how are FCs not instantiated in the L1 represented in the underlying grammar of the L2, and how are FCs which have different values in the L1 and the L2 represented in the underlying second language grammar? Concerning the development of FCs in the L2, is there a difference in the development of a FC that needs to be 'reset' and a FC that needs to 'be activated' in the L2?

In order to tease apart differences in acquisition between functional projections activated in the L1 and functional projections not activated in the L1 it is necessary to look at an instance of each of these.

The aim of our investigation therefore is to study the development and the knowledge representation at ultimate attainment of a FC not activated in the L1 and a FC which is present in the L1 and the L2 but with different values. This requires

1. an instance of an L2 which activates a FC not activated in the learners L1 and an instance where the L1 and the L2 values of a FC are different.

2. a cross-sectional sample of learners at different proficiency levels ranging from lower intermediate to near-native and a control group of native speakers.

3. a test instrument which taps the underlying competence.

The next chapter which is a contrastive analysis of the learners' L1, Sinhala, and the L2, English, will provide us with an instance of each of the types of functional projections: AGR which is realised only in the L2 and TNS which is realised in both languages but with parametrically variant properties.

Chapter 5 includes the description of a cross-sectional sample of Sinhalese learners of English and native speakers of English and a description of the test instrument used to elicit acceptability judgments as empirical data.

Chapter Four

A CONTRASTIVE ANALYSIS OF INFL IN ENGLISH AND SINHALA

4.0 Introduction

In the previous chapter we noted that in order to explore differences in acquisition between FCs that require activation in the L2 and FCs that require resetting, we need an instance of a FC activated in the L2 but not in the L1 and an instance of a FC activated in the L1 and the L2 but with different properties. Sinhala, the learner's L1, activates the functional category TNS but it does not activate the functional category AGR. English, the L2, activates both AGR and TNS, but the properties of TNS in English are parametrically variant to those of Sinhala. Therefore Sinhalese L1 speakers learning English as a second language need to 'activate' AGR and 'reset' the values to the properties of TNS in the L2 grammar.

In this chapter we will compare the syntax of Sinhala and English to determine the areas of the L2 grammar that require restructuring with the instantiation of AGR and the reassignment of values to TNS. This theoretical overview will provide the basis for our empirical study. This chapter is organised as follows:

a. General notes on the status of English in Sri Lanka.

b. Typological comparison of Sinhala and English.

c. Functional heads within INFL in Sinhala and English.

d. The properties of TNS in the two languages and the resultant parametric variation.

e. Differences in the structure of Sinhala from that of English due to the absence of AGR followed by the properties of AGR in English.

f. Implications for Second Language Acquisition: the aspects of the ILG that need restructuring with the instantiation of AGR and the resetting of the values of TNS.

4.1 Some Notes on the Status of English in Sri Lanka

English was introduced to Sri Lanka in 1796 when it was colonized by the British. Ceylon as it was known then, was a British colony for 152 years until 1948. The

legacy left by the British was the English language, the legal system and parliamentary democracy. Hence, English was the language of government, law, commerce and education. With independence however, in certain areas, English was gradually replaced with Sinhala, the first language of the majority Sinhalese community in Sri Lanka. The National Language Bill introduced in 1956 made Sinhala the official language of the country. Education at primary and secondary levels, and governmental affairs were thenceforth conducted in Sinhala. However, legal and commercial affairs as well as education at the tertiary level (at university level) in the sciences continue, to this day, to be carried out in English. English was reinstated as one of the official languages of the country in 1986 with the 13th amendment to the constitution where it is defined as the 'link' language in Sri Lanka.

The media, that is, television, radio and news papers disseminate information in all three languages: English, Sinhala and Tamil. The television devotes an equal proportion of time to programmes in all three languages while the National radio has 9 channels in English and 11 in Sinhala. Every major news paper has an equivalent in each of the main languages. Therefore English, in Sri Lanka is a second language and not a foreign language to which learners are exposed only in the class rooms.

The education system introduces English into the curriculum at year 3, when children are 9 years old. To the majority of Sri Lankans this is the first formal exposure to English. English, together with Sinhala, mathematics and religious education is one of the compulsory subjects that have to be offered at the Ordinary Level Examination. However, the school system in Sri Lanka has not been very successful in teaching English especially in the rural areas (for only a limited number of students obtain a pass in English). Those who obtain distinctions in English are allowed to take English literature as a subject in the Advanced Level Examination and can go on to the BA in English Literature and Language.

In Sri Lanka proficiency in English is vital both in higher education and the world of commerce and law. Since a very high standard of English is required to follow lectures, write projects, examinations etc., all universities offer their undergraduates ESL courses. The ESL courses are obligatory for all students other than those who obtain 85% or over at the placement tests. Institutions like the Open University of Sri Lanka (which also offers English as a compulsory subject to its undergraduates) and the British Council also offer English courses to Sri Lankans who are not within the

university system, but who wish to improve their English in order to procure employment or career advancement.

The rules of English that are taught in schools and universities and adhered to in the courts of law, by the media etc., are those of British English.

4.2 Typological Characterisation of Sinhala

Sinhala belongs to the Indic branch of Indo-European languages, and shares certain typological features with other languages in this group. The typological characterisation reveals that it contains all the surface features of a canonical left branching language, with the complement to the left of the head in all maximal projections; SOV, post-positions (OP), genitive + noun (GN) and adjective + noun (AN). English on the other hand, is a right branching language with the exception of the adjective + noun combination where the head follows the complement. Example:

(1)a. Sinhala: miniha bat kæva
the man rice ate - SOV

b. English: the man ate the rice - SVO

Adpositions:

(2) poTa meese uDə̲.
the book table on.
'The book is on the table'.

Adjectives:

(3) katanDara poTa meese uDə.
the story book table on.
'The story book is on the table'.

Following is typological comparison of English and Sinhala along the variables identified by Greenberg (1966).

(4) Typological contrast between Sinhala and English

	Colloquial Sinhala	English
Branching direction	left	right
Adpositions	postpositions	prepositions
Word order variability	free word order	rigid word order
Dummy subject	[-] dummy subject	[+] dummy subject
Object-verb order	OV	VO
Agreement	[-] subject-verb agreement	[+] subject-verb agreement
Passivization	[-] passive	[+] passive

4.3 Parametric Variation in the Structure of INFL

As the focus of this study is the acquisition of the functional categories AGR and TNS which are generated under INFL, it is necessary to look at the structure of INFL in Sinhala and English in some detail.

Although Sinhala lacks subject-verb agreement and the assignment of structural Nominative Case to the subject NP, there is evidence to indicate that clauses in Sinhala project INFL. The evidence for INFL in Sinahala as pointed out by Gair (1990a) comed from the presence of Tense, Finiteness and other verbal affixes which are post-verbal and verb-adjacent. However, the properties of INFL in Sinhala are different from the properties of INFL in languages such as English. This is explainable within the Lexical Parameterisation Hypothesis since a given functional category can instantiate different features in different languages giving rise to cross-linguistic variation.

In accordance with the split INFL hypothesis (Pollock 1989, Chomsky 1989) the functional heads within INFL in Sinhala too will be assumed to project separate and independent nodes. In this section we will look at the functional categories instantiated within INFL in Sinhala and English and the resultant parametric variation.

4.3.1 Functional Heads Within INFL in Root Clauses

The independent sentence in Sinhala can be broadly categorised into two types according to the structure of the predicate. The predicate can be verbal or non-verbal. The functional heads projected within INFL differ in these different sentence types.

4.3.1.1 Functional Heads within INFL in Verbal Predicates

In verbal sentences the predicate is headed by a verb, e.g.

(5) [NP laməya [NP potə [VP kiyəwə-nəva]]]
the child book read-NPT(non-past-tense)
'The child reads the book'

A verb can bear only a limited number of suffixes and an inflected verb is composed of the root which may or may not bear a function affix to form a stem and one or more affixes. In order to ascertain the functional heads projected in basic clauses it is necessary to look at the inflections taken by the verb in such clauses. Following is an illustration of the basic verbal clauses in Sinhala in their affirmative form in the past and non-past(NPT) tenses.

(6) Simple present tense

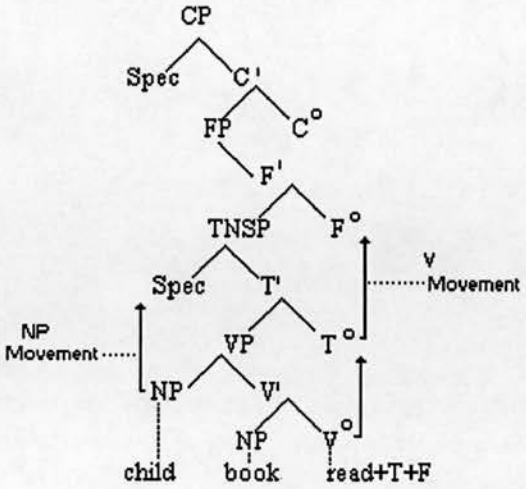
laməyapoTak kiyə-wə-nə-va
child book read+stem+TNS(NPT)+FINITE.
' The child reads a book'

(7) Simple Past tense

lamaəya poTak kiy-u-va
child book read+stem+TNS(PAST)+FINITE.
'The child read a book'

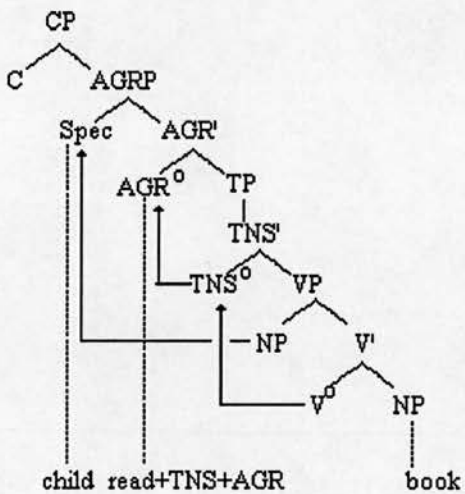
The verb thus inflects for TNS and FINITEness. The D-structure of verbal sentences together with the movement of the verb can be illustrated using a tree diagram (Gair and Sumangala 1991).

(8) The structure of verbal sentences in Sinhala (affirmative)



We can contrast this with the d-structure of an affirmative sentence in English.

(9) The structure of sentences in English (affirmative)



A comparison of the structure of a verbal sentence in Sinhala (8) with that of English (9) shows similarities as well differences. Sinhala projects TNS and FINITE and English TNS and AGR. In the linear order of functional heads the verb moves from TNS to FINITE in Sinhala and in English the verb moves to TNS and then on to AGR. ([+/-] Finite is a property of TNS in English). Thus both languages instantiate TNS. The languages are dissimilar in that Sinhala does not instantiate AGR.

4.3.1.2 Functional Heads within INFL in Non-verbal Predicates.

In non-verbal sentences the predicate can be headed by a member of a major lexical category, e.g. N (10), A (11), or P(12).

(10) [$_{NP}$ laməya [$_{NP}$ horek]]
the child a thief
'the child is a thief'

(11) [laməya [$_{AP}$ lassənayi]]
the child beautiful
'the child is beautiful'

(12) [laməya [[$_{NP}$ gaha] $_{PP}$udə]
the child tree on top
' the child is on top of the tree'

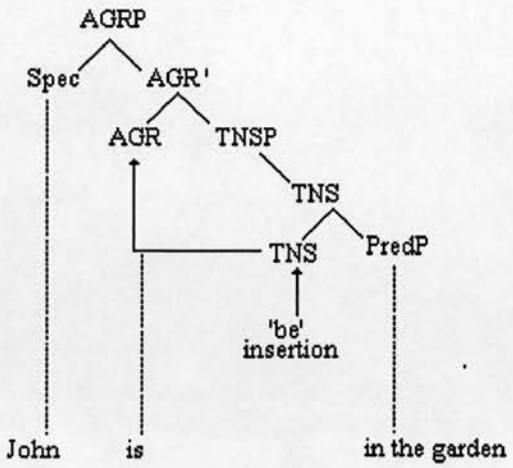
Thus unlike in English where predicates can only be VP, in Sinhala a predicate can be VP (5), NP, PP, or AP.

Non-verbal sentences are similar to complement sentences in English. In complement sentences in English, for example,

(13) John is in the garden

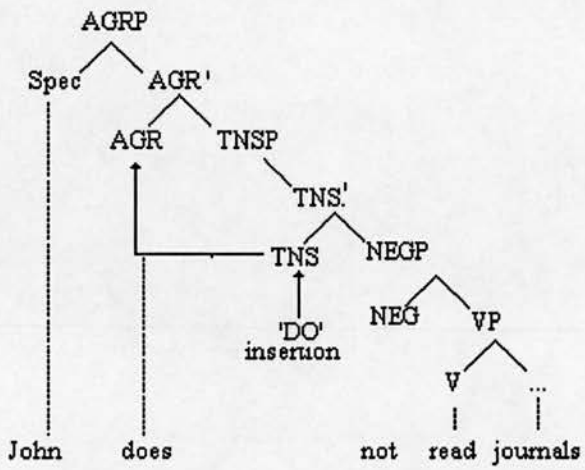
as in non-verbal sentences in Sinhala, it is the predicate PP *in the garden* that assigns a thematic role to the subject *John* via predication and not the copula (Rothstein 1983). The copula *be* in English is an 'expletive' in that unlike other verbs it lacks the ability to assign a thematic role and does not make any contribution to the overall meaning of the sentence (Pollock 1983). However, in complement sentences in English the 'expletive' copula is necessary to carry TNS and AGR inflections similar to DO support in negative sentences (15). Therefore the copula is inserted under TNS at in compelement sentences in English at S-structure as illustrated in (14).

(14)



Similarly in English 'DO' support is introduced in Negative sentences to support TNS and AGR (Ouhalla 1991). The verb is prevented from moving up to TNS and AGR in English by NEG (15). Since the overt manifestation of NEG in English is non-affixal, it cannot be incorporated in to the verb. Therefore, in negative sentences in English a dummy verb 'DO' is introduced to carry the TNS and AGR inflections.

(15)



Non-verbal sentences in Sinhala do not require the insertion of a verbal element because there is no TNS projection and therefore no inflection that needs to be supported. The "verbless nominal or adjectival sentences does duty for all tenses " (Gair & Paolillo 1988:56). Gair & Paolillo (op.cit) go on to argue, on the basis of the insertion of copula verbs (16) and (17), negation and focus marking (20), that the predicate in non-verbal sentences are not covertly verb headed as complement sentences without an overt copula in Russian are.

The three stative verbs in Sinhala *innə* ('to be'-animate) *tiyənə* ('to be'- inanimate) & *venə* ('to become') which correspond to *be*, unlike *be* contribute towards the meaning of the sentence. Semantically all three contain a stative element of 'being' Following is an illustration of negative sentences with and without the animate verb 'to be'- *'innə '*

(16) laməya gedərə næ.
the child home not
'The child is not at home'

(17) laməya gedərə in-ne næ.
the child home be+[NPT+FIN] not.
'the child does not remain/stay at home' (he always goes out)

Although the predicate in non-verbal in sentences in Sinhala are not covertly verb headed, these are not 'small clauses' but independent sentences. According to Radford (1988) clauses which lack INFL and COMP are 'small clauses'. For example,

(18) *I consider [*that* John intelligent]

The non-verbal sentence in Sinhala however can take a COMP element (19).

(19) eya guruvərəyek *<u>bəvə</u>* api dannəva.
He teacher that we know
'We know *that* he (is) a teacher'

Given that only verbs can have tense the non-verbal sentences in Sinhala have a minus value for TNS. However, Gair and Paolillo (1988) show that these sentences project the functional category of F(ocus) which is an element within INFL (Chomsky 1989). In [NP XP] sentences in Sinhala the focus (or assertion) marker is overtly marked when a vowel final adjective heads the predicator (20).

(20) laməya lassəna - yi
child beautiful +FOC
'The child is beautiful'

Focus can be projected in verbal sentences too (21).

(21) ee nona yann-ne kolombəta-yi
That lady go-Emph Colombo+FOC
'It is Colombo that that lady is going to'

The emphatic form of the verb, i.e. *yan-ne* as opposed to the basic form *yanə-va* occurs in focused or cleft sentences. The Focus - marking forms which can occur with verbal and non-verbal sentences include the question marker *-də* (22), the reportative *-lu* (23), the conjunction *'nan'*, and the emphatics, *'tama'*, *'tamayi'* and *-yi*. Some of these forms such as *tamayi* and *-yi* are in complementary distribution in verbal and nonverbal sentences. Thus, although non-verbal sentences do not contain a verbal element overtly or covertly they, unlike small clauses, contain an I node and can take COMP.

(22) a. mee poTə hondə-də? (non-verbal)
this book good+question marker
'Is this book good?'

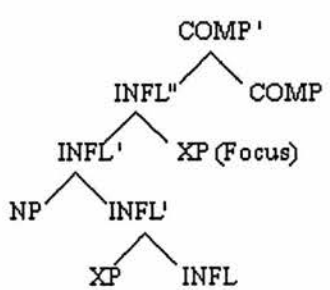
b. ee nona yann-ne kolombəta-də? (verbal)
that lady go-Emph Colombo+question marker
'Is it Colombo that that lady is going to?'

(23) a. mee poTə hondə-lu (non-verbal)
this book good+reportative marker
'This book (is reported) to be good'

b. ee nona yann-ne kolombəta-lu (verbal)
that lady go-Emph Colombo+reportative marker
'That lady (is reported) to be going to Colombo'

The underlying structure of non-verbal sentences can be illustrated as follows:

(24)



To summarise, there is variation in the functional heads projected within INFL in verbal and non-verbal sentences in Sinhala. Verbal sentences project TNS while non-verbal sentences do not. There is also parametric variation between English complement sentences and Sinhala non-verbal sentences. Complement sentences in English project TNS and AGR while non-verbal sentences project only Focus.

In the following section we will examine the properties of the functional category TNS in Sinhala and English. This will enable us to determine the properties of TNS that need to be 'reset' in English as a L2.

4.4 Tense

The tree structures for root clauses in English (9) and verbal predicates in Sinhala (8) indicate that TNS in both languages is the head to which the verb moves first in simple affirmative sentences. Therefore, in accordance with The Mirror Principle[1] (Baker 1985) and the HMC[2], in the derived order the tense inflection would be the closest to the verb root in both languages. The fact that the verb first moves to TNS to acquire the tense inflection in Sinhala as well as in English suggests that TNS c-selects a [+V] category in both languages. Subsequently however, the [V+TNS] form in Sinhala moves to F(initeness). Therefore, sentences in Sinhala are headed by F(initeness) where as in English, the basic clause is headed by AGR.

In the previous section (4.3.1.1) we saw that verbal sentences in Sinhala are + [TNS] while non-verbal sentences are - [TNS]. Therefore in Sinhala a finite sentence can either choose to project TNS or not whereas in English all finite sentences are + [TNS]. This is in keeping with the Functional Parameterisation Hypotheses which holds that the properties of functional categories can vary not only between languages but within the same language as well (Ouhalla 1991). In this case, there is a within language variation in the projection of TNS in Sinhala between verbal sentences and non-verbal sentences. There is also a variation between TNS in Sinhala and English in that non-verbal sentences do not project TNS but complement sentences in English do.

In both English and Sinhala when the finite form of a verb is used in a clause, it functions as the head V of the VP. Finite verbs in both Sinhala and English inflect for

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[1] See section 2.1.4.1 for a discussion of the Mirror Principle
[2] Head Movement Constraint. See Chapter Two, section 2.2.2.2 E.

a two term system of tense, past and non-past. In Sinhala both past and non-past are overtly marked on all verbs with all persons. Both languages inflect for [+ Past] tense via a past tense inflection ('*-ed*' in English and '*-va*' in Sinhala) or via a morphologically changed root form (as in *go - went*).

The paradigm for the finite verb form in the past and non-past tenses is exemplified below (25) with the verb roots: *kərə-* 'to do' , *natə* 'to dance' and *yanə* 'to go' and *enə* 'to come'.

(25)	non-past	past
	kərə-nəva	ker-u-va
	naTə- nəva	næT-u-va
	ya-nəva	gi-ya (morphological change in root)
	enə-va	yanə-va

An inflectional paradigm is considered as being morphologically uniform if the paradigm has either only underived inflectional forms or only derived inflectional forms (Jaeggli and Safir 1989a). Since all forms in the verbal paradigm in Sinhala consist of derived inflectional forms the verbal paradigm in Sinhala is morphologically uniform [+MU].[3] In English past tense is marked with all persons but only the third person singular carries the non-past tense inflection. On the other hand, Cambell argues that the 3ps.sg. is an AGR inflection and that "there is no present tense morpheme on English verbs other than *be* .." (1991:160). Either way, since the verbal paradigm in English comprises both derived and underived forms it is morphologically non-uniform [-MU] in the non-past tense.

The non-past tense form in Sinhala is used to indicate the present as well as the future. Future events or actions are indicated by using a time adverbial with future reference. Example

(26) laməya heTə enə-va
child tomorrow comeNPT+FIN
'The child will come tomorrow'

The non-past form is also extensively used to indicate contemporaneous actions in addition to the habitual or recurrent (Wickramasurisya 1978) Thus,

[3] Morphologically uniform verbal paradigm. See section 4.5.4 of this chapter.

(27) taata bat kanə-va
Father rice eatNPT+FIN

can indicate either *father eats rice* or *father is eating rice* (action in progress). On the other hand, in the simple present tense the nonstative verb in English can have only a habitual or generic interpretation (Cambell 1991:161).

(28) Mary builds a house. (≠ 'Mary is building a house').

Both Sinhala and English make the finite/non-finite distinction on verbs. In Sinhala the non-finite form of a verb, like the finite form comprises 'stem + inflection' e.g. kiyə -wa-nnə. In English, the non-finite form has the [-TNS] marker '*to*' in infinitival complements (29), but has the bare infinitive without '*to*' in imperatives (30).

(29) John began to read the book

(30) Read the book

In Sinhala the same form is used in infinitival complements (30) as well as imperatives (31).

(31) John poTə kiyə-wa-nnə paTangatta.
John book read +stem+INF begin+PAST
'John began to read the book'

(32) poTə kiyəwa-nnə
book read +stem+INF.
'Read the book'

Therefore, although both languages mark the finite/non-finite distinction, Sinhala has only one form to indicate [-TNS] (kiyəwa-nnə) while English has two (31) and (32). Further, the [-TNS] form has different m-selectional properties in the two languages; the [-TNS] marker in Sinhala is 'bound' while '*to*' in English is 'free'.

In addition to this TNS in Sinhala, unlike that in English, posses a Kase grid which requires saturation. This will be discussed in section 4.6 (of this chapter).

4.4.1 Summary

We can summarise the properties of TNS in Sinhala and English as follows:

(33)	Sinhala	English
Verb moves to TNS [V+TNS]	[V+TNS]	[V+TNS]
Complement sentences	[NP + XP]	[NP +TNS+ XP]
Marks [+/- Past] i. [+past] ii. [+non-past]	[+/- Past] i. marks [+past] uniformly ii marks [+non-past] uniformly	[+/- Past] i. marks [+past] uniformly ii. marks [+non-past], not uniform:
Non-finite form [- TNS]	'bound' : stem + affix	i. 'free': *to* infinitive: ii. bare infinitive
Finite form [+TNS]	affixal	affixal

4.4.2 Positive Evidence for TNS in English

There is positive evidence available in English in the way of overt manifestations as well as abstract features to indicate that it instantiates the functional category TNS with the above properties. The overt inflections which denote that English makes a [+/-past] distinction are the past and non-past forms of the copula (34), auxiliary (35) and the past tense *-ed* and 3ps.sg. *-s* inflections on the main verb (36).

(34) a. John *was* a student at the university of Edinburgh in 1973 - past
b John *is* a student at the university of Edinburgh - non-past

(35) a. John had a red car (last year) - past
b. John has a red car (now) - non-past

(36) a. John voted for the consertive party at the last elctions - past
b. John votes conservative (usually) - non-past

The other evidence which point to TNS in English are the insertion of a copula in complement sentences, 'Do' support in negative sentences (exemplified in 14 and 15).

Further evidence for TNS in English is found in sentences with a Modal auxiliary. One of the properties of Modal auxiliaries is that they lack a non-finite form, and hence they are intrinsically finite.

(37) a. *I've never known [you *will/might/could/should* hate anything as much as mathematics]

b. I've never known [you to hate anything as much as mathematics]

Therefore sentences which contain the *to* infinitive marker in non-finite clauses and modals in finite clauses will constitute further evidence for the functional category TNS in English.

4.5 The AGR(eement) Node

In the examination of functional heads within INFL in Sinhala in section 4.3.1.1 it was noted that INFL in Sinhala differs from INFL in English in that Sinhala does not project the functional category AGR. This is theoretically possible within the Principles and Parameters model and has also been substantiated empirically. Cross linguistic evidence shows that languages do not activate all the functional categories available in the UG Lexicon. The overt and abstract evidence in the syntax for claiming that Sinhala does not project an Agreement node are :

a. The absence of overt agreement marking.

b. Subject NP's in Nominative, Dative, Accusative and Instrumental Case.

c. The absence of 'raising' type verbs (i.e. verbs that do not assign a subject theta role and hence require the movement of the NP in its complement to subject position, e.g. *seem, appear* etc. in English)

e. NP movement, i.e. 'moving to subject' is not accompanied by a change in the Case assigned to the NP

d. Lack of passivisation

f. The absence of a copula verb which assigns Nominative Case to the subject position in non-verbal sentences (complement sentences).

g. The presence of finite transitive sentences without overt subjects but with 'arbitrary agent' readings.

We will examine some of these in detail in the next section to ascertain the particular areas of the syntax that need to be reorganised in L2 acquisition with the instantiation of AGR.

4.5.1 Absence of Overt Agreement Marking

Sinhala does not mark subject-verb agreement on the verb. The verb form does not change in accordance with the number, gender or person of the subject NP.

(38)	mamə/	oyaa/	eyaa/	api/	oyaa-la/	eyaa-la	- natə-nə-va
	I/	you/	(s)he/	we/	you-pl/	they	- dance + stem + affix

Lack of overt inflections alone however, is not sufficient to postulate the absence of a category, as cross linguistic evidence shows that certain categories are present but are marked by a ∅ morpheme. For example, although modals in English are not overtly marked for person agreement that does not indicate a failure to instantiate an AGR node for sentences with modal verbs. In addition to this, Tait and Cann (1990) argue that any functional category, that does not manifest overtly (i.e. phonologically) is not projected syntactically[4] in that language. This claim is made on the basis of language acquisition for they argue that without overt evidence a child will not know that a certain category is instantiated in her L1.

We will now look at other evidence which support the claim that Sinhala does not have an AGR element which assigns Case or discharges phi-feature on the subject through co-indexation.

4.5.2 Subject Case Marking

The Case filter stipulates that an NP must receive Case in order to be licensed. An NP can be assigned inherent Case at D-structure or receive structural Case at S-structure. It was noted in section 2.2.2.2 that when an NP occupies a position at D-structure which does not receive Case it moves to a Case marked position at S-structure. It was

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[4] In the case of English Tait and Cann (1990) suggest that since AGR in English is weak i.e. under specified, it does not instantiate a separate node but collapses together with Tense giving rise to a node which they identify as TAP.(Tense and AgrP). For the purpose of this study however we will adopt the more standard view that TNS and AGR have separate projections in English and that subject-verb agreement is marked overtly on the verb only with a 3rd person singular subject.

also noted that in English the external argument moves to [Spec, INFL] to receive Case from AGR. Since AGR assigns Nominative Case, subject NP's in English bear structural Nominative Case.

Sinhala has a richly specified Case system and Nominals inflect for Nominative (also known as Direct Case to distinguish from structural Nominative), Accusative, Dative, Genitive/(locative) and Instrumental/(Ablative) Cases. Nominals are also marked for number (singular and plural) and definiteness (definite and indefinite). The paradigm for nominals is illustrated in (39) with the animate noun *'laməya'* child .

(39)	Singular (definite).	Singular (indefinite).	Plural
Nominative	laməya	laməyek	lamayi
Accusative	laməya-wə	laməyek-wə	laməyin-wə
Dative	laməya-Tə	laməyek-Tə	laməyin-Tə
Genitive	laməya-ge	laməyek-ge	laməyin-ge
Instrumental	laməya-gen	laməyek-gen	laməyin-gen

In English although NP's can be Case marked Nominative , Accusative or Genitive only NP's with Nominative Case can occupy the subject position. In Sinhala as we will see, NP's bearing all cases other than Genitive Case can appear in subject position. We will look at subject Case marking in verbal and non-verbal sentences in Sinhala.

I. Verbal Sentences

As seen in the examples (40) - (43), in Sinhala the subject in NP in verbal sentences i.e. where the predicate is headed by a VP, can be case marked Nominative (40), Dative (41), Accusative (42) or Instrumental (43) Case.

(40) laməya poTə kiyəwa-nəva

child-NOM book-NOM read +NPT

'The child reads the book'

(41) ma-Tə aliya-wə pene-nəva

I-DAT elephant-ACC see+NPT

'I see the elephant'

(42) miniha-wə tamange pokune w·æ Tu-na
man-ACC self-GEN pond-GEN fell+PAST
'The man fell in his own pond'

(43) aanDuw-en eekə-Tə aadaarə denə-va
govt-INST that-DAT aid-NOM give+NPT
'The government gives support for that.'

Gair (1990a) points out that the absence of structural Nominative Case on the subject NP is consistent with the absence of AGR, for it is argued that AGR is inherently nominative [+N] and can therefore be coindexed only with a Nominative NP (Holmberg and Platzack 1988). The presence of an AGR coindexed with its Specifier to which it assigns Nominative case would therefore preclude Oblique Case (Cases other than Nominative case) in subject position.

Gair (1990a) accounts for the presence of subject NP's marked in a variety of Cases by proposing that in Sinhala like in other South Asian languages such as Hindi, Maithili etc., NP's are assigned inherent Case rather than structural Case. Further evidence for strong lexical or inherent case in Sinhala, is the ".. the resistance of Sinhala case to change under syntactic processes" (Gair 1991:14). Speas commenting on Gair (1990a), Kachru (1990) and Mohanan (1990) says that

> "...there are no strictly structural cases in these south Asian languages. ...authors share the view that all cases are either predictable based on the semantics (i.e., 'inherent cases' in the sense of (Chomsky 1986a) or are default cases. (1990b:62) "

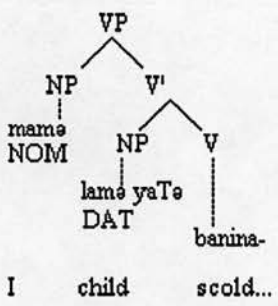
Inherent or lexical case is assigned at D-structure by the verb within VP. Gair following Fukui 1986, Stowell 1981 states that verbs are associated in the lexicon with a theta-grid, and specific cases may be specified as being associated with particular elements in that grid. That is to say, verbs subcategorize for an array of Case roles such as Agent, experiencer, source etc. Thus the Case assigning properties of each lexical item are indicated in its lexical entry which Speas (1990a :17) assumes takes the form of a grid. It is stated (Speas op.cit) that the positions in the Kase grid of a lexical category which assigns inherent Case are linked to positions in its theta grid. This claim is substantiated in Sinhala for it has been shown that Case marking is intimately linked with theta roles (Jayawardena 1971). For example in a sentence such as

(44) laməya-Tə ridenə-va
child-DAT hurt-NPT
'The child is hurting' (in pain)

The verb *ridenə* in Sinhala subcategorizes an experiencer argument which is associated with Dative Case.

Discussing the manner in which arguments receive Case in Sinhala Gair states that "arguments are associated with case-theta linkages in a 'bottom up' fashion proceeding from V" (1990b:23). Since all theta roles of the verb must be projected on to the syntax, the head continues to project until all of the positions in its theta grid have been discharged[5]. For example,

(45)



It was noted in section 2.2.2.1C that when a predicate assigns more than one theta role, in the projection of the theta roles on to the syntax, the syntactic prominence of the argument corresponds with that of the thematic hierarchy. Since the Agent theta role occupies the highest position , if the verb assigns an agent theta role it would occupy the external argument position. Speas (1990b) extending Gair's (1990b) suggestion states that Nominative (inherent) Case is assigned to the Agent and if there is no Agent, 'subject properties' i.e. externalization are borne by the most prominent argument. This explanation while saturating the Case grid of the Verb also accounts for the presence of Nominative, Dative, Instrumental and Accusative Case on subjects.

Although the (volitive) Agent argument is in Nominative Case and it is also unmarkedly the subject, this is not the only occurrence of Nominative Case in subject

[5] Following Cowper (1988) Gair assumes that as in Japanese and Icelandic in Sinhala too the V' is iterable.

position. Even though subjects Case marked dative and accusative are thematically 'experiencers' and 'patients/themes' respectively, there are apparent experiencers and themes that are in the Direct Case. In (46) an experiencer subject appears in Nominative Case.

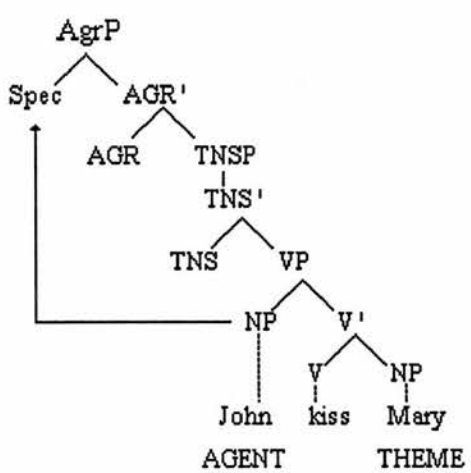
(46) mamə ee miniha-wə dannə -va

I-NOM that man-ACC know-NPT
'I know that man'

Given that there is no AGR, there could be no special relationship between the INFL node and Nominative Case. Therefore it has been claimed (Gair 1990b) that for the left most argument of the theta grid Nominative Case is the unmarked (default) case in Sinhala. (Objects in transitive sentences are Case marked accusative or dative, never direct).

In English, the subject NP in finite clauses is assigned structural Nominative case spec-head agreement. At D-structure, in accordance with the Lexical Clause Hypotheses, the external argument in both English and Sinhala like other theta marked arguments is realised in VP. Since the verb in English does not assign lexical case together with the theta role, in order to satisfy the Case filter the external argument has to raise into the [Spec, IP] position to receive Nominative Case from AGR (47). This movement also satisfies the requirement that the Kase grid of the functional category AGR be saturated, i.e. the F-features of AGR, can be discharged on the moved element.

(47)



In English therefore Case is both assigned and realized at S-structure under the configuration of government by the Case assigner, (which in this case is AGR) and is independent of theta-marking. In Sinhala on the other hand Case is intimately linked with theta role since inherent Case is assigned by the verb to its arguments by associating specific elements in the theta grid with specific Cases.

We will next look at the Case assignment in non-verbal sentences in Sinhala and Complement sentences in English.

II. Non-verbal sentences

Further evidence for the absence of AGR in Sinhala comes from non-verbal sentences. These sentences lack any overt verbal form. As seen, (in 4.3.1.2) in non-verbal sentences the subject NP is followed by a predicate headed by any major lexical category: NP, AP or PP. In non-verbal sentences as in complement sentences in English the subject NP is assigned a theta role via predication by the XP, (where X stands for any major lexical category other than verbs) which heads the predicate.

Given the Case-theta linkage in Sinhala, the predicate phrase assigns case to the subject together with theta role in [NP XP] clauses too. Therefore the subject NP in non-verbal sentences too can appear in dative or Nominative (direct) Case.

(48) ma-tə unə
I-DAT fever.
'I have fever'

(49) laməya gedərə
the child-NOM home
'the child is at home'

Thus, non-verbal sentences illustrate that Sinhala does not instantiate an AGR which mediates Nominative Case as they do not contain a verbal element overtly or covertly (Gair and Paollilo 1988).

In complement sentences in English although the theta role is assigned to the subject of complements by the predicate, a semantically null verbal element, i.e. copula *be* is inserted to support the TNS and AGR inflections. The verbal element thus inserted also fulfills another purpose. Although the subject receives its theta role from the predicate in complement sentences, it does not receive Case. A lexically empty head

AGR cannot m-command its Spec position and the Specifier cannot be properly governed. Hence if there were no verbal element in AGR, AGR would not be able to assign Nominative Case to the subject position. The absence of a lexical element [+V] in AGR would therefore lead to a violation of the Case filter in complement sentences in English.

III. Intransitive Sentences

Given the stipulation that "just as every case must be licensed, every case-licensing head must have a case to license" (Holmberg and Platzack 1988:28) an overt NP is obligatory in [Spec, AgrP] to saturate the Kase grid of AGR in English. Therefore, when the verb does not theta mark an external argument as in raising verbs, the lexical non-thematic NP's 'it ' and 'there' i.e. expletives, are introduced to satisfy Kase grid of AGR[6]. 'Expletives' are elements which are not arguments and to which no theta role is assigned. Therefore the expletive acts merely as a slot filler, a dummy pronoun that plays no role in the semantic make up of the sentence but acts as a place holder for an otherwise unfilled subject position.

Sinhala does not require and therefore does not have non-thematic expletive subjects because it has no AGR. As Sinhala also does not have raising verbs such as *seem* , the only occurrence of intransitive sentences are those with 'weather verbs'. These verbs do not have a subject.

(50) hæmədamə vahinə-va
everyday rain+NPT
'(it) rains every day.'

To summarise, the subject NP in Sinhala is assigned inherent Case at D-structure by the verb together with the theta role while in English the subject NP is assigned structural Nominative Case at S-structure under government by AGR. AGR can be co-indexed only with an NP bearing Nominative Case. In order for AGR to be able to assign Kase to its Spec position, a) [Spec, AgrP] needs to be lexically filled by an NP and b) AGR itself has to be lexically filled by a verbal element to enable proper government of [Spec, AgrP].

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[6] This also satisfies the Extended Projection Principle

4.5.3 Absence of Passives and Raising verbs

Sinhala does not have the passive or raising to subject operations that change the case marking on the moved NP. The semantic idea conveyed by passive sentences in English is expressed in Sinhala through a verbal affix which indicates that the action took place involuntarily and not deliberately.

(51) laməya pi gaanə kædu-va
child-NOM plate-ACC break+PAST
'The child broke the plate' (deliberately)

(52) laməya atin pi gaanə kædu-na
child-NOM by plate-ACC break+PAST(involuntary)
'The plate was broken by the child' (accidentally/involuntarily)

Since (52) shows no difference in object case assignment, it is claimed that Sinhala lacks a passive construction, periphrastic or otherwise (Gair 1990b:19).

Sinhala does not have 'seem' type raising verbs that fail to assign case within their complements either. 'Raising' verbs in English pattern with unaccusative verbs in that they lack an external argument and fail to assign structural case to its complement. Since raising verbs take only an internal argument the D-structure resembles (40)

(53) $[_{IP}\ e\ [_{I'}\ [_{VP}$ Verb NP]]]

Because accusative Case is not assigned to the complement by raising verbs, at S-structure, the NP to which the internal theta role is assigned moves to subject position to be case marked by AGR as illustrated in (54) and (55).

(54) $[_{IP}\ NP_i\ [_{I'}\ [_{VP}$ Verb $t_i]]]$

(55) $[_{IP}$ Poirot$_i$ $[_{I'}$ -s $[_{VP}$ seem $[_{IP}\ t_i$ to have solved the case]]]]

Here, the raising verb 'seem' takes one internal clause argument but does not assign accusative case to the subject of the lower infinitive 'Poirot', which then moves to the subject position of the matrix clause. This movement while satisfying the Case filter also enables AGR to discharge its F-features on the moved NP.

The absence of such raising-to-subject operations further confirm the lack of an AGR element in Sinhala that assigns structural Nominative to the subject position.

4.5.4 The Presence of pro (arb) Subjects

According to the Null Subject Parameter, null subjects are licensed in tensed sentences "..... in all and only languages with morphologically uniform inflectional paradigms" (Jaeggli and Safir,1989a:29).

There are two types of morphologically uniform languages: those in which all forms of the verbal paradigm are uniformly inflected e.g. Italian, or none are, e.g. Chinese. Sinhala is a language which has a morphologically uniform inflectional paradigm with all forms comprising stem+affix.

(56)	mamə/	oyaa/	eyaa/	api/	oyaa-la/	eyaa-la	-	naTə -nə-va
	I/	you/	(s)he/	we/	you-pl/	they	-	dance + stem+ affix

Therefore null subjects are permitted in Sinhala. Finite sentences can occur

a) with null referential subjects,

b) without expletive pronouns (see example 50 above) and

c) without overt subjects but with 'arbitrary agent' readings.

Gair (1988, 1990a,b, 1991) attributes the presence of null subjects with an arbitrary agent reading to the absence of an AGR category. Sinhala does not have lexical equivalent of 'they' as an arbitrary agent. Therefore, finite sentences with the transitive forms of the verbs 'grow' and 'close' can occur with null subjects which give an arbitrary agent reading (57). These sentences which are discourse-functional equivalents of passives or 'arbitrary they ' sentences in English.

(57)	may	pætte	huŋgak	wee	wawə-nə-va
	this	area	much	rice	grow+stem+NPT

'(They) grow rice in this area'- (rice is grown in this area)

Gair points out that sentences such as (57) 'contrast with otherwise identical sentences with either referential NP's or (where the discourse permits) referential null pro' (1991:13). Gair suggests that the null element in question is therefore not PRO (arb), which occurs as the subject of non-finite clauses. Sentences such as (58) 'not only imply an agent but must be used if agentivity is involved... and in the case of a null nominal the agent thematic role is assigned (to it) " (1991:16).

(58) api/Ø mee pætte huŋgak wii wawə-nə-va
we/Ø this area much rice grow+stem+NPT
'We/Ø grow rice in this area'

Thus, null pronouns with arbitrary reference can occur as a subject in finite tensed sentences like overt referential NP's, or null referential NP's. Hence, they are identified as $pro_{(arb)}$ subjects . The verbs 'grow' (close etc.), like all other verbs in Sinhala have intransitive/unaccusative counterparts which indicate non-volitionality;

(59) gas wæ we-nə-va
trees grow(involuntarily)+stem+NPT
'Trees grow'(no agent)

As noted above in the sentences with arbitrary agent readings however, it is the transitive form (wawə-nə-va,) that is used. Gair (1991) explains that absence of an AGR with specific phi features to be discharged on the subject NP through co-indexing permits the occurrence of 'featureless' governed null arguments or $pro_{(arb)}$.

The evidence from lack of agreement marking on the verb, the presence of subjects baring varied Case, the absence of an AGR marked copula assigning Case to the subject NP in complement sentences, the presence of null referential subjects, the absence of expletive subjects and the presence of null subjects in transitive sentences with arbitrary agent readings indicate that Sinhala does not instantiate an AGR category.

4.5.5 Null Subjects

According to Rizzi (1986) for null subjects to be grammatical, they have to be both licensed and identified.

A view which has gained acceptance in current linguistic theory (and is able to provide a better explanation for the presence or absence of overt subjects across languages) is the licensing of null subjects via "*Morphological Uniformity*" (Jaeggli and Safir,1989a)[7]. According to this, null subjects are licensed in all and only languages that have morphologically uniform verbal paradigms. As seen in (43)

[7] Linguistic theory has different views as to the licensing factor for null subjects across languages. Safir (1985) argues that null expletive subjects are permitted only if the EMEX condition is met. The EMEX condition stipulates that an expletive empty category must be governed.

Sinhala possesses a morphological uniform verbal paradigm and therefore both null referential and null expletive subjects are licensed. Sinhala therefore is a pro-drop language. English on the other hand, has a morphologically 'mixed' verbal paradigm and therefore does not permit null referential or null expletive subjects. It is a non-pro-drop language.

Languages which fulfill the licensing condition must also meet the identification requirement to permit null subjects. Identification entails the recovery of the referential contents of null *pro*. Expletive subjects do not require identification as they lack referential content. Therefore only null thematic (referential) subjects need satisfy this condition. Depending on the way null referential subjects are identified, languages can again be divided into two major categories; [+AGR] or [-AGR]. Languages such as Italian identify the null subject locally by means of a 'rich' AGR that Case governs the empty category, (AGR with +TNS). In [-AGR] languages such as Chinese the null subject is identified non-locally. A null subject in a main clause is identified by a null topic, which itself is related to a Discourse TOPIC that binds a variable in subject position (Huang 1984). That is to say, the discourse TOPIC is grammatically linked to a null sentence topic which in turn identifies the null argument. This process is known as 'Topic Chaining'.

(60) Discourse TOPIC$_i$ [topic$_i$ [IP e_i [I'...]]]

A null subject in a subordinate clause is identified by a C-commanding nominal in the matrix clause.

Thus languages vary with regard to whether the null element is identified 'internally' by AGR or 'externally' by a Topic chain. Since Sinhala in this respect is similar to Chinese, the identification of null thematic subjects takes place non-locally via a null topic which in itself is bound to a discourse Topic. In English, the question of identification does not arise since null subjects are not permitted.[8]

Weissenborn (1992) following Huang (1984) suggests that languages can be ranged along a continuum according to the distribution of null subjects and null topics. Chinese type languages have a null topic (that binds the null subject) while Italian,

[8] A recent analysis of the pro-drop parameter which is based on L1 acquisition claims that English is a 'residual topic drop' language (Hyams 1994). English according to this analysis permits topic drop under restricted circumstances as in the following examples: a) Wanna leave b) Seems like it's gonna rain c) Had a wonderful day today.

English type languages do not have a null topic. He also distinguishes between languages that allow null subjects i.e. Italian, Chinese and languages that do not e.g. English. The combination of these two allow four different language types:

(61)

+ null topic + null subject	+ null topic - null subject	- null topic + null subject	- null topic - null subject
Chinese, Sinhala	German[9]	Italian, Spanish	English

According to this, Sinhala and English are at the opposite ends of the continuum with Sinhala permitting both null topic and null subject and English permitting neither.

4.6 [SPEC, INFL] Projection

It has been argued that Japanese, a language typologically very similar to Sinhalese fails to instantiate IP or any other functional category (or that if it has INFL, it is a weak' one that does not project a specifier. Fukui 1986, 1987). However, numerous facts have been put forward to support the fact that Sinhala, unlike Japanese, projects a [Spec INFL] position (Gair 1990a).

On the basis of evidence from Japanese and other non-European languages Fukui (1986, 1987) claims that only specifiers 'close off' double bar or maximal projections and that only functional categories can have specifier positions which prevent recursion. Lexical categories can project only up to single bar level and therefore are freely iterable, (the recursion being constrained only by the projection principle and other licensing conditions. Japanese, it is argued (Fukui op.cit.), allows multiple subjects because there is no [Spec, INFL] position, and the subject remains within the V' position. V being a lexical category permits free recursion of the single bar level.

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[9] Weissenborn says that "contrary to French and English, adult German has the possibility to omit thematic lexical subjects. They can be omitted in the preverbal position of tensed matrix clauses, given an appropriate context.

A: Was machte Hans, als du ihn sahst? B: (Er) sah fern.
What was Hans doing when you saw him? (He) was watching TV. "(1992:273)

(62) bunmei koku-ga dansei-ga heikin-zyumyoo-ga mizikai

civilized countries-Nom male-Nom average-lifespan-Nom is short in
'It is civilized countries that men, there average lifespan is short in'
(Fukui and Speas 1986:136)

Sinhala does not permit multiple subjects like Japanese.

Further evidence for [Spec, INFL] in Sinhala comes from word order. The Lexical Clause Hypotheses, which holds that at D-structure all arguments of the theta grid occupy positions which are dominated by a projection of the verb, taken in conjunction with the unmarked [SAOV] derived order of sentences containing adverbials, implies that the external argument moves left ward pass the adverbial to [Spec, INFL] in Sinhala.

(63) Mamə hetə gedərə yanə -va.

I tomorrow home go+NPT
'I (will) go home tomorrow.'

Similarly, the occurrence of participial forms requiring subject control between the Subject and VP in the unmarked order also seems to indicate that the external argument has a landing site to the left of adverbial and participial positions (Gair 1990a). Therefore there is evidence in Sinhala to indicate that it projects [Spec,IP] and that the external argument moves to it.

It is stipulated in Fukui and Speas (1986) that a Spec position would appear only if the functional category assigns Kase or F-features to that position. It is also said that 'functional heads could project past a single bar level if and only if they bore inflectional features (i.e. Kase) which they discharged to the Specifier position'. AGR in English has Kase features (+Nominative) to discharge, hence it projects a specifier position.

A standard assumption within the principles and parameters theory is that an element moves from the base generated position only if motivated by some general principle of grammar. In English, the external argument moves to [Spec,INFL] to satisfy the Case Filter. It is also necessary for an argument to move to [Spec,INFL] to saturate the Kase grid of AGR. Thus in English transitive sentences, there is dual motivation for the movement of the external argument to [Spec, AgrP]: the Case filter and the saturation of the Kase grid of AGR.

In Sinhala however, NP movement cannot be motivated by the Case Filter since arguments are assigned inherent Case at D-structure. In order to account for the projection of a [Spec,INFL] as well as the movement of the external argument to this position Gair (1990a) suggests that INFL in Sinhala assigns a purely structural "contentless " case to its specifier position.

"..we can regard the externalization as following from a requirement that INFL has a KASE feature that must be discharged, under a 'Saturation Principle' " (Gair 1990a:33)

The F-feature is identified as [+SUBJ]. This feature accounts for NP movement but without an accompanying change in Case. Gair and Sumangala (1991) propose that TNS projects a specifier position to which it assigns the Kase feature of +SUBJ[10]. Although purely structural (contentless) for the lexical Case assigned to the subject by the verb is maintained, the [+SUB] feature requires that the subject argument externalize. Gair (1990a:31) sees this in terms of a 'weak INFL', an INFL that does project to [SPEC, I] but due to the lack of AGR, is not strong enough to assign Nominative case. The head T^{o} , like AGR^{o} governs the subject position permitting null subjects, pro (arbitrary) null subjects as well as subject-less intransitive sentences (where English would require an expletive subject). Therefore, although Sinhala does not posses an AGR node which assigns structural Nominative to its specifier position it has a TNS node which assigns a 'contentless' structural case to its Spec position.

There is also Spec-head agreement between TNS and its specifier in the case of 'volitive and involitive optative forms' (Gair 1970) *-nnan* and *-vi*(or *yi*), verb endings attached directly to the stem as finite affixes, instead of the past/nonpast tense affixes.(These affixes signal futurity and in the case of the volitive - determination).

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[10] Under the Minimalist Program (Chomsky 1993) it is TNS rather than AGR which checks the Case of the subject NP. The V-features of AGR check the agreement on the adjoined verb and NP-features of AGR check the theta-features of the NP. The V-features of TNS check the tense on the adjoined verb and NP-features check the Case of the NP in (Spec AGR). The feature checking takes place when the functional elements TNS and AGR incorporate the features of the verb , i.e. when the verb has cyclically moved to TNS and to AGR.
A further factor proposed in the Minimalist Program is the Principle of Greed or Last Resort where Move-alpha applies to an element alpha only if morphological properties of alpha itself are not satisfied, and cannot operate to satisfy the properties of some different element 'beta'(p 47). Under this analysis the NP base generated in Spec VP cannot move to Spec TNS to saturate the Kase feature [+subj] of TNS since its own Case requirements are met in the base generated position.

The former co-occurs only with a volitive agent (65a) and the latter with non-volitive agents (65b).

(64) a. mamə naTa-nnan
I dance+VOL+OPT
'I will dance (volitively)'

b. miniha amaaruwe waeTee-vi
man difficulties fall+VOL+OPT
'The man might fall into difficulties'

These forms do not represent AGR as they do not impose Nominative Case. For semantic and pragmatic reasons the volitive form is limited to the first person (expressions of volitionality intersect with person in Sinhala (Fernando 1973, Gair 1971). Although it is a semantic match that takes place between the theta role of the NP and the volitive/involitive affix, it is also regarded as some kind of Spec-head agreement.[11]

Gair (1990a) suggests that this is a parametric variation in the properties of INFL in Sinhala from those of English on the one hand with those of Japanese , and those of 'quirky' Case languages such as Hindi, Marathi and Icelandic. In fact he suggests that contents of INFL could be arranged according to a typological continuum, as shown in (65).

(65)

	[+/-] AGR	[+/-] Structural Nominative	[+/-] SUBJ
English	+	+	+
Hindi	-	+	+
Sinhala	-	-	+
Japanese	-	-	-

To summarise both Sinhala and English project a [Spec, INFL] position to which TNS in Sinhala assigns a 'contentless' structural case and AGR in English assigns structural Nominative case. Therefore, since INFL is headed by TNS in Sinhala [Spec,

[11] The spec-head agreement would satisfy the licensing of the null topic in Sinhala according to the reformulation of the null subject parameter by Hyams (1994).

IP] is [Spec, TNSP] whereas INFL in English is headed by AGR and therefore [Spec, IP] is [Spec, AgrP].

In this section we looked at how the grammar of Sinhala differs from that of English due to the absence of AGR. In the course of the discussion certain properties of AGR in English were established. AGR in English has a Kase feature that needs to be saturated. AGR assigns structural Nominative case to its specifier and therefore AGR is [+N]. In the following section we will look at other properties of AGR in English.

4.7 AGR in English.

In 4.7.1 we examine the manifestations of subject-verb agreement in English and its place in the markedness hierarchy (typological markedness). We also discuss the characteristics of [Spec, AgrP] in English (4.7.1.1) and the 'strength' AGR (4.7.2).

4.7.1 Subject-verb Agreement

There is a close link between a specifier and its head, one closer than that between an ordinary adjunct and its head (Cann 1993). This link has been represented as that of co-indexing of head and specifier through Spec-Head Agreement. Describing Spec-head agreement Chomsky (1986b) says

> "Spec-head agreement is a form of 'feature sharing' similar to θ-government - in fact. sharing of the features of person, number, gender, Case etc. [the phi-features] when AGR is present..."(1986b:24)

Cann (1993) states that Spec-head agreement is obligatory: "If α is the specifier of β , then α and β must be co-indexed" (1993:15).

However, languages vary with respect to the extent to which agreement between specifier and head are morphologically realised. For example, in comparison to languages such as Italian or French, agreement inflection in English is minimal. Therefore, AGR in English is considered 'poor' as opposed to AGR in richly inflected languages and cannot therefore identify a null referential subject.

Cambell (1991) claims that the values of AGR in English are:

(66) 'Agr $\in$ {1SG, 2SG, 3SG, PL}' (1991:166)

From this we can see that English makes a distinction between number: singular and plural, and between person, 1st, 2nd and 3rd. The verb in English does not inflect for gender. Therefore, AGR in English has the properties of : [+number] for a 2 term system, [+person] and [-gender].

Cambell goes on to say that in English only *be* inflects for AGR in the present and past tenses. Other verbs inflect for AGR only in the present tense[12] (and for tense only in the past). According to this classification therefore, the 3ps. sg. *-s* is only an agreement marker and not a tense marker.

(67) Verbal inflection in English

	be		other verbs	
	present tense	past tense	present tense	past tense
I	*am*	*was*	*speak*	*spoke*
You	are	were	speak	spoke
He	*is*	was	*speaks*	spoke
We	*are*	*were*	speak	spoke
You	are	were	speak	spoke
They	are	were	speak	spoke
	3 forms	2 forms	2 forms	1 form

be marks singular and plural in the present as well as in the past. Other verbs do not inflect for number in the past. All verbs inflect for person in the present. Cambell (op.cit) points out that *be* in the present tense has distinct person endings 1st, 2nd, 3rd only in the singular and that there is only one value for plural. He goes on to show further evidence for this from agreement in relative clauses. According to Cambell's classification in English,

- *be* inflects for +Past [+AGR [+number]] or -Past [+AGR [+number] [+person -singular]]].
- Other verbs inflect for [+Past -AGR] or [-Past +AGR].

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[12] It is possible that past tense verbs (other than 'be) inflect abstractly for AGR especially since in middle and early modern English the 2ps.sg. 'thou' took the suffix '-st' in the present and the past tenses.

Thus, the feature specifications of AGR are impoverished and therefore insufficient to identify a null subject in [Spec, AgrP]. In order to be able to determine the content of a missing subject, agreement marking has to be rich (Taraldsen 1978). The meagerness of agreement marking on the verb in English has been given as a further reason for not allowing null referential subjects.

In addition to subject-verb agreement being impoverished, it is also claimed that agreement marking in English is marked (Zobl and Liceras 1994). From a typological perspective, English requires subject-verb agreement marking on the verb with a 3rd person singular subject which is universally the default person. Furthermore, the item thus morphologically marked is the unmarked member of the number contrast, i.e. the singular rather than the marked plural member. They suggest that the marked nature of the 3ps.sg. *-s* will result in its low accuracy in L2 acquisition.

A further feature of AGR in English that becomes apparent from (68) above is that the overt manifestations of AGR are affixal. Therefore the m-selectional property of AGR in English is bound and therefore, has to be attached to a lexical element so as not to violate the Stray Affix Filter. Given that agreement affixes in English can attach only to verbs, the m-selection properties will also specify that the categorial nature of the element the AGR affix can attach to has to be [+V].

4.7.1.1 [Spec , AgrP]

With regard to the parametric variation in the specifier of AGR, Rouveret (1991) claims that [Spec, AgrP] can either be an A-position or an A'-position[13].

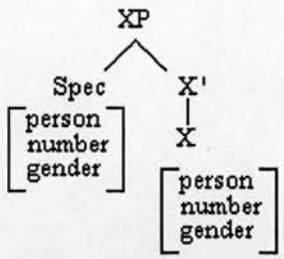
Hoekstra and Mulder say that

> "a. An A-chain relates a theta position to a Case position.
> b. An A-position is a member of an A-chain" (1990:37)

Rizzi (1991) claims that the class of A-positions is coextensive with the class of theta positions and specifiers of heads marked [+AGR] or more precisely, heads construed with agreement in phi-features. According to this definition [Spec, XP] in the diagram below is an A-position

[13] A and A'-positions are defined in Chapter Two, section 2.2.2.2.F.

(68)



Accordingly Rouveret proposes that when AGR is specified for phi-features, [Spec, AgrP] qualifies as an A-position. On the other hand when AGR is construed with the specifier of the position it governs, not with its own specifier, as in Welsh, then [Spec, AgrP] functions as an A'-position. He also says that if AGR does not assign Case to [Spec, AgrP] it is an A'-position. In Welsh, AGR shares features with the position it governs and therefore, in copula constructions when [Spec AgrP] is filled, AGR does not share features with the preverbal NP. According to this analysis, since AGR assigns Case to its specifier and it shares φ features with the preverbal subject NP, [Spec, AgrP] in English qualifies as an A-position.

4.7.2. Verb Movement and 'Strength' of AGR.

In addition to Kase features and subject-verb agreement marking, the properties of AGR also have other consequences in the rest of the grammar. For example the 'strength' of AGR affects the word order.

The verb acquires inflections through head to head movement and when a thematic verb moves it must be able to transmit its theta-roles to the NP's it subcategorizes. Pollock (1989) states that in the event of an adverb intervening between the moved verb and the NP it governs (i.e. the Direct Object), a 'strong' AGR is 'transparent' to the transmission of the theta-role to the DO but a 'weak' AGR is 'opaque' to theta-role transmission.

To illustrate this, in French finite clauses the verb precedes the ADV and it is ungrammatical for the verb to follow the ADV:

(69) a. 'Jean embrasse souvent Marie' - [SVAO]

b. *'Jean souvent embrasse Marie' - [SAOV]

In non-finite clauses on the other hand, the verb can either precede or follow the ADV.

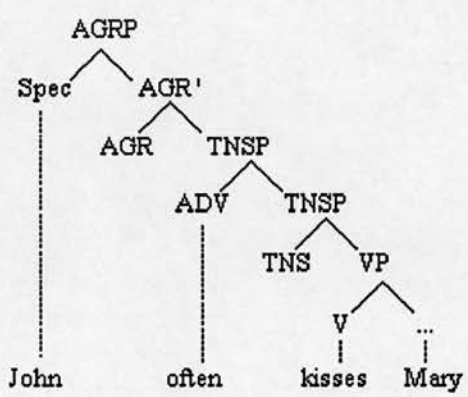
(70) a. Perdre complétement la tête..... [VAO]

b. Complétement perdre la tête.....[AVO]

This difference is attributed to the presence of AGR in finite clauses and the absence of it in non-finite clauses. AGR in French is said to be 'strong', therefore in finite clauses it attracts the verb via TNS over the ADV yielding the derived order of [SVAO]. This obligatory movement of the verb is not required in non-finite clauses as there is no AGR, hence the verb may precede or follow the ADV (Pollock 1989).

In English on the other hand, AGR is said to be 'weak' and therefore unable to transmit a theta role to the DO when an adverb intervenes between the verb and the DO. Therefore, when an ADV is attached to TNSP, as illustrated in (71), the verb does not move to AGR over the ADV as the intervening ADV would preclude the transmission of the theta role to the direct object, i.e. 'Mary' in examples (57) a & b.

(71) ADV attached to TNSP



(72) a. John often kisses Mary. [SAVO]

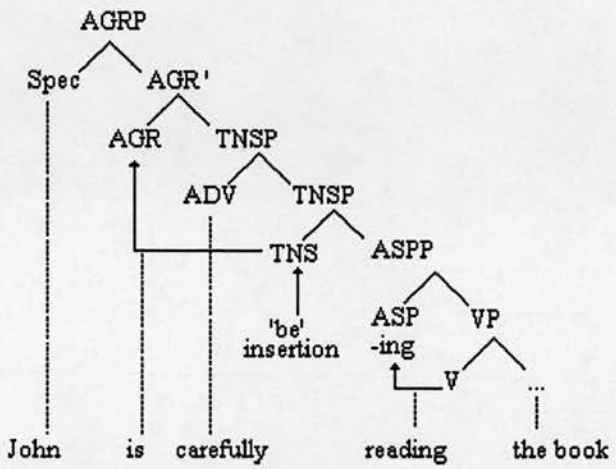
b. *John kisses often Mary. [SVAO]

Next we will look at another example where AGR dictates word order in English. We saw (in section 2.1.3.3) that in English movement of the [V+ASP] complex to TNS, is precluded because *ing* is a nominal element i.e. [+N] and TNS can attach only to a [+V] element. Therefore the expletive *be* is attached directly under TNS to support the stranded affix and moves up to AGR to pick up the person and number inflections. This yields the derived order given in (57).

(73) John is reading the book.

When an ADV is attached to TNS as in (74) below, as the expletive *be* does not assign a theta role to the complement, it is free to move over ADV to AGR.

(74)



This yields the surface order of

(75) John is carefully reading the book.

If *be* failed to move up to AGR the result would be ungrammatical. Example,

(76) *John carefully is reading the book.[14]

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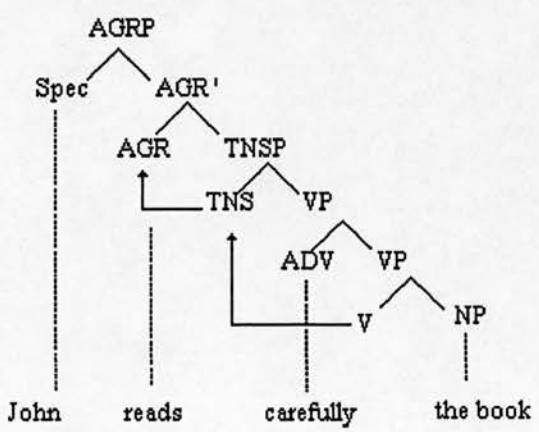
[14] In English VP adverbials have the option of being attached to either the TNSP or to the VP itself.



If the ADV were attached to the VP it would yield the order
*'John reads carefully the book'

Rohrbacher (1992) proposes an alternate explanation as to why 'strong' agreement inflection triggers verb movement and 'weak' agreement inflection does not. He combines the opposing view put forward by Lieber (1980) and La Pointe (1980) with those of Anderson (1982) and Beard (1991) as to the nature of inflectional morphology. Rohrbacher suggests that in a language with 'strong' morphology, each agreement morpheme has its own lexical entry in the lexicon while in a language which has 'weak' agreement, inflectional affixes do not have independent lexical entries but are listed in the lexicon in verbal paradigms. Affixes which have their own lexical entries are available to the computational component and therefore can head their own projections. On the other hand, affixes that have no independent entries but are listed in paradigms are inserted into syntactic representations already attached to their hosts. Therefore in languages with strong agreement, a morpheme AGR heads the AGR projection and the verb moves to AGR to pick up the inflection. In languages with weak agreement, the AGR morphology is inserted at V^0. Therefore there is no verb movement. The criterion Rohrbacher gives for 'strong' agreement is,

> "A language has V to I raising if it has at least one set of three affixes which mark 1st, 2nd and 3rd person in the singular or 1st, 2nd and 3rd person in the plural. ' (1992:xx)

The notion of 'strong' and 'weak' agreement inflections accords with Cambell's (1991) claims concerning Agreement in English and the observed verb movement over adverbs in English. According to Cambell only *be* in English inflects for 1st, 2nd and 3rd person in the singular. Other verbs inflect only for 3ps.sg. Therefore under Rohrbacher's definition *be* would be the only verb in English where each agreement inflection has its own lexical entry in the lexicon and therefore heads its own projection. Since the other verbs have 'weak' agreement, the affixes will be listed in the lexicon in verbal paradigms. This is substantiated in V-movement to AGR over the ADV in English. In the progressive aspect sentences, *be* moves past the ADV to pick up the agreement inflection as in (74) above. But in sentences with other verbs (71), there is no V-movement over the ADV to AGR. The lack of verb movement is

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If however, the direct object of the V is not an NP, then it is possible for the verb to move over the ADV to TNS and to AGR.
'The soldiers lost completely to the enemy / The soldiers completely lost to the enemy' This has led to the question whether it is the transmission of the theta role or case assignment to the NP that is blocked by the adverbial. When the verb is followed by a PP its the preposition that assigns case to the following NP.

accounted for if the agreement inflection is inserted into the syntactic representation already attached to the host. This also explains how the verb in such sentences get the agreement inflection, since affix lowering is not permitted the absence of V-movement to AGR violates the Stray Affix Filter[15].

Speas (1993) associates a 'strong' AGR as one which can license a null subject. She adapts Rohrbacher's (1992) proposal and suggests that a 'strong' inflection is an inflection that triggers pro-drop. The connection between a 'strong' AGR and pro-drop and weak AGR and non-drop is based on the Principle of Economy which stipulates :

(77) Project XP only if XP has content (Speas 1993:9) .

In languages with strong AGR, the affix is base generated in the AGR position and AgrP has content. Hence, the language can project AgrP. But in weak AGR languages where the affix is base generated on the verb something else must give content to the AgrP projection. Either a pleonastic must be inserted in [Spec, AgrP] or an NP must move to that position. For if both Spec and Head are empty AGRP cannot be projected without violating the Economy Principle in (77). Therefore, a language with a weak AGR must have a filled [Spec, AGRP] prior to spellout[16] while a language with a strong AGR may leave [Spec, AGRP] empty.

According to Speas' (1993) proposal because AGR in English is weak and has no content (in verbs other than *be*) , in order to be able to project AGR, an overt element is obligatory in [Spec, AgrP]. In languages such as Japanese, Chinese (and therefore Sinhalese) which have no agreement Speas (1993) claims that there is no need for an AGR projection at any level. Therefore the question of licensing never arises.[17] Accordingly three types of languages can be identified:

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[15] Chomsky (1991) assumes that in English, only BE raises to INFL , i.e. engages in head-to-head movement but that main verbs do not raise to INFL; rather tense and agreement move down to the main verbs in the syntax. Main verbs are said to raise to INFL only at Logical Form. Based on the Economy of Derivation Principle (Chomsky 1991) Zobl and Liceras (1994) propose that verb movement is unmarked vis-à-vis affix movement , (i.e. affix lowering)

[16] The reason for the AGR projection in languages with weak or residual agreement is the need for AGR features to be checked in a [Spec, Head] relation at LF. Since derivation has no further access to the Lexicon at spellout, if AGR is needed at LF, the AGRP projection must exist prior to spell out. Therefore in a language which has AGR features there must be an AGR projection with content prior to spellout (Speas 1993)

[17] Speas (1993) follows Chomsky (1992) in the assumption that structural Case is represented at LF in terms of a spec- head relation in which Spec and head are coindexed and hence abstractly agree.

(a) In a language that has 'strong' AGR, a morpheme heads AGRP. Therefore Spec may be empty.

(b) In a language that has 'weak' AGR and the morpheme is attached to V, Spec must be filled to enable the projection of AGRP.

(c) In a language which has no AGR, [Spec, INFL] may be empty.

To summarise, a 'strong' AGR is one which is transparent to theta role transmission and therefore able to trigger verb movement. (Pollock 1989) It has independent lexical entries which project their own head (Rohrbacher 1992) and permits null subjects (Speas 1993). A 'weak' AGR on the other hand is 'opaque' to the transmission of theta roles. It does not trigger verb movement since the affixes are base generated attached to the host and needs an element in [Spec, AgrP] to give content to AgrP. As seen so far, AGR in English is 'weak' on all three aspects.

4.7.3 Summary of the Properties of AGR in English

The properties of AGR in English identified in this chapter can be set out as follows:

1. C-selection Properties	AGR c-selects TNS:	English is an AGR-initial language i. because the subject is in the initial position in the surface order: SVO (Ouhalla 1991) ii. AGR to assign Nominative Case to [Spec, IP] via Spec-head agreement which takes place between AGR° and the subject in [Spec, IP] (Chomsky 1989)
2. M-selection properties		i. Agreement affixes are bound i.e. affixal, ii. Agreement affixes can attach only to a [+V] category.

In languages which have AGR , the relevant head is said to be AGR while in languages which have no AGR the head could be TNS, ASPECT.

3. Grammatical features	phi features:	[+ number]: i. be: [+/- Past +AGR] ii.other Verbs: [-Past +AGR] singular (3ps.) [+ person]: i. be: [- Past +AGR] 1st,2nd,3rd only in the singular ii.other verbs [-Past +AGR] 3rd person (singular)
	Categorial features:	[+N]
4.Kase features		[+Nominative] , [+SUBJ]
5. Other features	'weak' AGR	i. It cannot identify a null subject. ii. It is 'opaque' to the transmission of theta role iii. *be* and *have* pick up affixes via head-to-head movement iv. It needs an element in [Spec, AgrP] to give content to AgrP. v. AGR° has to be lexically filled to enable Nominative Case assignment to [Spec, AgrP]
6.[Spec, AgrP]		A-position

The primary language data which indicates to the learner that English instantiates an AGR with the above properties will be discussed next.

4.7.4 Positive Evidence for AGR in English.

The overt and abstract evidence that the Sinhala learner of English would have to activate an AGR which assigns Case and discharges phi-feature on the subject through coindexation are as follows.

a. Evidence for the Kase feature of AGR would be the moving- to-subject operations in sentences with raising verbs, and the presence of expletive subject NP's in sentences with raising and thematic (main) verbs. The obligatory nature of the overt referential subject NP would not constitute positive evidence for the Sinhalese learner since Sinhala permits both overt and null lexical subjects. Subjects

Case marked Nominative would not constitute evidence either since the default case in Sinhala (as seen in section 4.4.2I) is Nominative.

c. The evidence which indicates that subject-verb co-indexing takes place in English is overt subject-verb agreement marking.

d. In addition to the overt features learners will also receive more abstract positive evidence in the way of word order: i.e. movement of *be* over the ADV in sentences in the progressive aspect and the presence of a verbal element in complement sentences.

4.8 Summary of Parametric Variation in INFL Between English and Sinhala

INFL is headed by TNS in Sinhala and by AGR in English. Sinhala projects separate nodes for TNS and Finiteness, it does not activate AGR. English instantiates AGR, but Finiteness is realised as a property of TNS. Both Sinhala and English project TNS but with parametrically variant properties as shown in table (26).

Both Sinhala and English project a [Spec, INFL] to which AGR in English assigns structural Nominative Case and to which TNS in Sinhala assigns a structural [+SUBJ] Case.

All sentences in English project TNS. Sinhala projects TNS in verbal sentences but not in non-verbal sentences. Both languages have a two-term system of Tense: past and non-past. In Sinhala, tense is marked uniformly with all persons, but in English. it is marked uniformly only in the past tense.

Both languages make the finite [+TNS]/non-finite [-TNS] distinction. In Sinhala and English [+TNS] can be indicated by an affix. [-TNS] in Sinhala is indicated by an affix whereas in English it is indicated either by the free morpheme *to* or by the bare infinitive. That is to say, in English the m-selectional property of [-TNS] is non-affixal while in Sinhala, it is affixal.

In both languages TNS is specified [+V], hence only a verbal category can attach to it.

In the course of the discussion we identified other related parameters along which Sinhala and English vary. These are listed in (a), (b) and (c) below.

a. Sinhala has a morphologically uniform verbal paradigm , i.e. [+MU] while English has a morphologically mixed verbal paradigm, i.e. [-MU]. Therefore, the learners' L1 has the less marked while the L2 has the more marked value[18].

b. Sinhala permits null subjects and therefore is [+pro-drop] (or topic-drop) and English is [-pro-drop] as it does not allow null subjects. Following White (1989a)[19], in this study we will assume that the [+pro-drop] value is marked and [-pro-drop] value is unmarked since this agrees with the learnability criteria which is used to define markedness .

c. In Sinhala NP's are assigned inherent Case by the verb at D-structure, while in English the NP's are assigned structural Case at S-structure.

4.9 Implications for SLA

It has been shown that Sinhala does not instantiate AGR but English does. It was also seen that both languages instantiate TNS but with parametrically variant properties. Therefore Sinhalese learners of English have to

a) 'activate' the functional category AGR in the L2 grammar, and

b) 'reset' the value of TNS.

In order to achieve an underlying competence similar to that of native speakers, the AGR instantiated in the ILG must have the following properties;

1. AGR has a Kase feature which discharges structural Nominative case to its Specifier, i.e. the subject position.

- Nominative Case is assigned at S-structure and it is assigned to the position through Spec-head co-indexation and not by agent-Nominative linkage or by default.

- To saturate the Kase grid of AGR, an obligatory overt lexical NP is necessary in [Spec, AgrP].

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[18] See section 2.3.1 for a discussion of the marked and unmarked setting of the Morphological Uniformity parameter.

[19] The pro-drop parameter in relation to language acquisition is discussed in section 2.3.1.

- The [Spec VP] being ungoverned , the external argument in English does not receive Case from the verb. Therefore the movement of the external argument to the Spec of AGR is motivated by the Case filter as well as the saturation of Kase features of AGR.

2. Spec-head agreement manifests itself in the overt agreement marking on verbs.

- The verb inflects for [+Number] and [+Person].

- The agreement marking is too impoverished to identify the contents of a missing subject.

3. Word order.

- AGR in English is 'weak': i.e. it is opaque to the transmission of theta role to the complement NP and therefore, when an adverb is attached to the TNSP the verb does not move up to AGR. Also, agreement inflections do not trigger verb movement as they are base generated on the verb (in verbs other than *be*)[20].

- When a non-theta assigning expletive verb *be* is introduced to carry the TNS affix in progressive aspect sentences the verb moves to AGR.

In the case of 'resetting' the values for TNS, L2 learners have to reanalyse that

- In English TNS is not marked uniformly in the non-past tense.

- TNS in English is obligatory in all sentences, verbal as well as complement sentences.

- The non-finite form in English is not a single form composed of Stem +affix, but two, one with the free morpheme *to* and other a bare infinitive.

- TNS in English does not project a Specifier position to which it assigns structural [+SUBJ] Case. Therefore, although the external argument in English moves leftward to [Spec,INFL] it moves past TNS to [Spec, AgrP].

In addition to activating the functional category AGR, the Sinhalese learner of English also has to 'reset' other related parameters. She has to change the value of the Pro-drop parameter from [+PD] to [-PD]. The learner has to move from a language that

[20] Verb movement and 'strength ' of AGR was discussed in section (4.7.2)

permits both overt and null subjects to a language that does not permit null subjects. The learner has also to reset the Morphological Uniformity parameter from [+MU] to [-MU]. The L2, unlike the L1, has a 'mixed' verbal paradigm where only some forms of the verb are inflected. Since the learner's L1 inflects all forms uniformly, the move would be from a unmarked value to a marked value of the parameter. Thirdly, the Sinhalese learner has to change Case assignment from inherent to structural. Case in the L1 is assigned at D-structure by the verb together with the theta role. In the L2 Case is assigned under government at S-structure. Therefore learners will have to replace one rule value with another, i.e. replace X with Y.

4.10 Conclusion

In this chapter we examined the syntactic structure of INFL in Sinhala and English. It was established that Sinhala does not activate the functional category AGR and that English does. We considered the parametric variation in the structures of the two languages resulting from this difference. It was also shown that both languages instantiate TNS but with parametrically variant properties. The contrastive analysis of the two languages also revealed that Sinhala and English differ on other related parameters such as the pro-drop parameter and the morphological uniformity parameter.

We outlined the changes that the Sinhalese learner of English has to make in her ILG with the instantiation of AGR, and 'resetting' of TNS with properties of both set to the value of English. The positive evidence available in the input to indicate that a particular FC is activated with the properties set to the particular values was also examined.

Based on the linguistic factors identified in this chapter, the empirical hypotheses we wish to test will be set out in the next chapter.

Chapter Five

THE EMPIRICAL STUDY

5.0 Introduction

We considered the theoretical background to the acquisition of Functional categories in a second language in chapter 3. In chapter 4 we looked at the parametric variation between English and Sinhala brought about by the presence or absence of the functional category AGR and the linguistic restructuring that needs to take place in the ILG with the instantiation of AGR. Based on the evidence from language acquisition theory and linguistic theory, we will, in this chapter, set out the experimental hypotheses which we propose to test. This will be followed by a discussion of the test instrument - acceptability judgements and the rationale for using it, and the types of measurements. We will also look at the experimental design and the test materials used in this study.

The second part will be a report on the administration of the main empirical study which consists of background information regarding the subjects i.e. the level of proficiency, age, sex, etc., and the procedure followed in the administration of the tasks. This is followed by a description of the steps taken in analysing the data together with the manner in which the results will be presented.

5.1 The Experimental Hypotheses

We will summarize the main points put forward in the theoretical background to this study.

5.1.1 Summary of Theoretical Assumptions

A. <u>Arguments from Language Acquisition</u>

(a) The principles of UG are invariant, hence they are available in any language acquisition process. The parameterised aspects, or the 'UG Lexicon' may be unavailable in L2 acquisition.

(b) At the commencement of the L2 acquisition process, learners already have a fully specified FC system from their L1. Therefore, in order to attain the L2 grammar learners have to

i. 'activate' FCs not activated in the L1,
ii. 'reset' the values to FCs already activated in the L1.

(c) The underlying grammar at near-native level in the case of

i. FCs not activated in the L1 could be incomplete, divergent or complete.
ii. FCs whose values have to be reassigned in the L2 could be divergent [-UG],
divergent [+UG] or complete.

This is directly related to whether L2 learners have access to parameterised aspects not activated in the learners' L1. In the case of 'incomplete' or 'divergent [-UG]' the underlying grammar is essentially similar to the L1 but, the overt manifestations of the FCs are re-analysed through the use of inductive learning mechanisms. A 'complete' or 'divergent [+UG]' competence would suggest that L2 learners have access to the UG lexicon. With 'divergent [+UG]' the values assigned to the parameters would be dissimilar to those in the L1 and the L2 but permitted in natural languages.

(d) i. At near-native level an incomplete grammar leads to indeterminate and inconsistent linguistic intuitions. A divergent grammar leads to determinate and consistent judgements.

ii. Indeterminacy in the intermediate grammars could be caused by, the absence of a certain parameter or in this case a FC (in early ILG), or due to values to parameters being reanalysed (intermediate grammars).

(e) In the acquisition of a second language, switching parameter values, i.e. 'resetting', may be more difficult than setting values for the first time, i.e. 'activating' parameters.

(f) The final state of the L1 grammar in some ways form the initial states of the L2. Therefore learners transfer FCs realised in the L1 and at least some of their properties from the L1 to the L2. Because the L2 data is initially analysed via L1 parameters, the TL data may be misanalysed in early ILG.

(g) i. The L1 parameter settings influence L2 acquisition when the L1 parameter setting constitutes the marked value and the L2 the unmarked value. In such instances, if UG parameterised aspects of UG are available, it is possible that L2 learners arrive at another alternate value permitted within UG rather than the least marked value of the TL.

ii. When the L2 value of a parameter constitutes the marked and the L1 the unmarked value learners can switch to the marked value of the L2.

iii. When the L1 value has to be replaced by the L2 ('X' with 'Y'), learners can make the switch.

iv. Primary Language data

a. has to be salient to enable a change in the value of parameters.
b. which is sufficient to set parameters in L1 acquisition may be insufficient to reset parameters in L2 acquisition when the L1 value is marked and the L2 is unmarked.
c. which can reset an L1 induced misparse can be different/rare.
d. can go un-noticed because the L2 input can be analysed via the L1 values or because it is not sufficiently salient.

(h) IL development

i. The intuitions learners have at a particular stage in the developmental continuum in the ILG will reflect the learners current underlying competence (White 1989a).

ii. IL development can be gradual and cumulative or discrete and discontinuous (Sorace 1992b). The former is an inherently implicational relationship and predicts that development unfolds slowly. The latter refers to sudden changes in the grammar due to parameter setting. These developmental patterns are also linked to the different learning mechanisms; cumulative development with the general problem solving mechanism and discontinuous changes with the language specific mechanism (UG).

iii. The hypotheses formulated in the process of development may result in overgeneralisations.

iv. Unlike in L1 acquisition overt morphological manifestations of FCs may be present from the earliest stages in the ILG. Therefore, a FC can be taken to be projected in the ILG only if the overt manifestations are supported by abstract features in the grammar such as verb movement or NP movement.

B. Arguments from Linguistic Theory

(a) Sinhala does not activate AGR, hence it permits null subject sentences, it does not have subject-verb agreement and it does not assign structural Nominative Case to [Spec,IP]. English instantiates AGR and it has the following properties.

1. AGR has a Kase grid in order to saturate which,

   i. [Spec, IP] has to be lexically filled. Therefore overt referential subjects, expletive subjects and moving-to-subject operations are obligatory.

2. The external argument in sentences with thematic verbs and the internal argument in sentences with raising verbs do not receive Case from the verb at D-structure. Hence these arguments must move to [Spec, IP] at S-structure to receive Nominative Case from AGR.

3. English has subject-verb agreement. AGR is specified [+Number] and makes a distinction between singular and plural. AGR is also specified [+Person] and lexical verbs are overtly inflected in sentences with a 3ps.sg subject. However, since agreement in English is 'poor' it is insufficient to identify the contents of a null subject. In Sinhala null subjects are identified via Topic-chaining.

4. AGR in English is 'weak', hence it does not attract the verb over the ADV in sentences with thematic verbs. But when the verb is a non theta assigning copula, as in sentences in the progressive aspect, the verb moves over the ADV to AGR.

(b) Both English and Sinhala activate TNS. Tense in both languages is specified for [± Past] and [± finite]. In English tense is uniformly marked only in the past tense, Sinhala uniformly marks both past and non-past. English makes a distinction in the [-finite] form between the '*to* infinitival' and the bare infinitival. Sinhala has only one [-finite] form comprising stem+affix. In English TNS is obligatory in all sentences, in Sinhala non-verbal sentences do not project TNS. TNS in Sinhala also projects a Spec position to which it assigns structural [+SUBJ] Case.

5.1.2 Hypotheses.

These theoretical assumptions lead to the experimental hypotheses we wish to test in this study. The main experimental hypotheses are followed by the null hypotheses which we hope to disprove. This will be followed by a more detailed expansion of the main experimental hypotheses.

The main experimental hypotheses are under two headings: Ultimate attainment and IL development.

Ultimate Attainment

H1. It is predicted that Sinhalese learners of English will activate AGR in their ILG. It is expected that at near-native level the underlying grammar of AGR in English will be divergent [+UG] with regard to the values assigned to its properties. The near-native linguistic intuitions will be consistent and determinate. [$\mathbf{H_0}$. L2 learners do not activate AGR in English. Hence the underlying grammar at near-native level will be incomplete. The overt manifestations of AGR would have piece-meal explanations resulting in inconsistent judgements to the different features of AGR, i.e., the grammar will lack internal consistency. The underlying grammar would essentially be similar to that of the L1.]

H2. It is predicted that Sinhalese learners of English will 'reset' the properties of TNS in the ILG. At near-native level the underlying grammar will match that of native speakers with regard to the values assigned to the properties of TNS. Hence the underlying grammar at near-native level will be 'complete'. The intuitions at near-native level will be consistent and determinate. [$\mathbf{H_0}$. L2 learners do not reset values of FC in the L2 when they differ from those in the L1. They will retain the L1 value. Hence the underlying grammar will be divergent [-UG] at near-native level. The judgements of near-native speakers will be consistent with the L1 values of TNS.]

IL Development

H3. It is predicted that in early ILG learners will transfer TNS and the properties assigned to it in the L1, to the L2. [$\mathbf{H_0}$. In early ILG, L2 learners will not transfer TNS or its properties from the L1 to the L2.]

Because learners initially analyse the L2 data using L1 parameters, in early ILG,

i. sentences which are consistent with L1 parameters but ungrammatical in the L2 will be accepted.
ii. learners will misanalyse the L2 input in accordance with the L1 parameters
iii. aspects not activated in the L1 grammar will not be recognised i.e. they will be 'filtered out' (Hyams 1987).

H4. It is predicted that learners will have more difficulty in 'resetting' values to existing functional categories than 'activating' new functional categories. [$\mathbf{H_0}$. There will be no difference in the development of functional categories that need activating and functional categories that need 'resetting' in the ILG.]

Expansion of Experimental Hypotheses:

(a) In H_1 we predict that Sinhalese learners will instantiate AGR in the ILG. It is hypothesised that AGR will not be present in early ILG and subjects at the stage where AGR appears in the ILG will find sentences without AGR unacceptable. In all cases a statistically significant preference for the grammatical sentence over the counterpart ungrammatical sentence will be an indication a) that AGR is instantiated in the second language grammar and b) the parameters have been 'reset' for TNS. It is also hypothesised that if the L2 grammar is divergent from the native grammar with regard to any property of AGR or TNS, the judgements with regard to that aspect will be consistent, determinate but different from native speakers. If any aspect of L2 the grammar in the IL is incomplete, the judgements on that aspect would be inconsistent, indeterminate and thus different from native speakers.

(b) In H_3 we predict that in early ILG learners will transfer TNS from the L1 to the L2. Therefore at lower levels of proficiency, properties which are common to the L1 and TL will be recognised prior to those found only in the TL. E.g. the [+TNS] marker will be recognised prior to the [-TNS] marker.

(c) In H_3. i. we predict that sentences which are grammatical in the L1 but ungrammatical in the L2 will not be rejected[1]. Hence sentences with null referential subjects and complement sentences without a copula will be found acceptable in early ILG.

[1] In an acceptability judgement task a sentence would be considered as rejected only if the level of rejection is significant in comparison to the acceptability of its grammatical counterpart.

(d) In $H3_{.}$ ii. It is hypothesised that learners will misanalyse the L2 input due to the use of L1 parameters. Therefore, in early ILG learners will assume that English too marks non-past tense via an overt inflection. A likely candidate for such an L1 induced misparse (Zobl 1987) is the 3ps.sg. inflection *-s*. If so, the 3ps.sg -s would be applied to all persons in the non-past tense making the verbal paradigm of the target language uniform[2]. If this pattern of judgement persists at near-native level it will provide evidence for the null hypotheses that parameters are not reset in L2 acquisition but that the L2 grammar assigns alternate analyses to the overt manifestations in the L2 (Tsimpli and Smith 1991).

(e) In H3 iii. we predict that judgements with regard to aspects not activated in the L1 grammar will be indeterminate. AGR is not instantiated in the L1 hence, the intuitions of subjects at lower levels of proficiency about sentences with and without AGR will be indeterminate. There will be indeterminacy in early ILG with regard to a) verb movement to AGR b) overt/null subjects and c) subject-verb agreement marking.

Elements which are common to the L1 and TL on the other hand, will be recognised prior to elements found only in the TL at lower levels of proficiency. Referential subjects, thematic verbs and modals are found in the L1 as well as the L2 while expletive subjects, raising verbs and the [-TNS] marker *to* are encountered only in the L2. Therefore, in the development of the IL, sentences with referential subjects will be recognised prior to sentences with expletive subjects, thematic verbs before raising verbs and modal [+TNS] markers before *to* as a [-TNS] marker.

(f) In $H4_{.}$ we predicted that learners will have more difficulty in 'resetting' values to existing FCs than 'activating' new FCs. Hence, in the development of the ILG, the reassignment of values to TNS will follow the instantiation of AGR.

In order to test these hypotheses with regard to the nature of the underlying grammar in the L2, we elicited acceptability judgements from Sinhala-speaking learners of

[2]This is a possible over regularisation since the learners are moving from a morphologically uniform to a morphologically 'mixed' language. In first language acquisition too Slobin (1971) notes that children acquiring morphologically rich and uniform first languages may over-extend an affix within a particular verbal paradigm.

English. In the following section we will discuss why we selected acceptability judgements as the test instrument.

5.2 Experimental Design

5.2.1 Test Instrument - Acceptability Judgements

This thesis focuses on the knowledge non-native speakers have of the second language, both during the developmental stages and at ultimate attainment. Pertaining to the structure of linguistic competence it has been said that,

> "..the rules of linguistic competence are abstract, not simple summaries of surface structure regularities of the language, and they are not easily related to occurring forms and utterances. LAD cannot work with metalinguistic representations and so it cannot derive the necessary abstract representations from the summaries of surface structure rules given in teaching grammars. LAD is designed to work on raw data to derive the abstract representations." (Jones 1985:116)

This implies, first, that competence is linked to the LAD or the language specific module and second, that linguistic competence is not wholly represented in surface forms and utterances. However, the mental structures and processes that make (language) learning possible are thought to be reflected in the linguistic intuitions speakers have of a language (Bley-Vroman, Felix and Ioup 1988). The view that a connection exists between grammatical knowledge and intuitions is also endorsed by Newmeyer (1983) who bases his claim on the fact that a number of significant facts about syntactic processing have been discovered via intuitions. Since linguistic intuitions are not directly accessible, researchers working within the Chomskyan framework, in pursuit of the underlying grammatical competence, elicit grammaticality/acceptability judgements regarding possible-impossible structures in a given language. Metalingual tasks are, therefore, regarded to some extent as a 'window into competence' (Bley-Vroman et. al. 1988, Coppietiers 1987, Felix 1988).

A reason given for the use of acceptability judgements as a means of tapping into linguistic competence as opposed to other types of metalingual tasks is the difference in the source of knowledge invoked. It was noted earlier (in section 3.1.3) that the knowledge structures of the language specific module are intuitive and implicit while the knowledge structures in the 'learning' module are explicit and comprises

metalinguistic knowledge and a system of facts and observations. These two knowledge sources have been linked to behavioral differences (see Mclaughlin 1978); acceptability judgements that rely on 'feel' or intuition to the language specific module and judgements that are based on justification, whether as metalinguistic rules or less informal descriptions, to the non-linguistic learning module.

On the other hand, other researchers in SLA have expressed reservations about the use of metalingual tasks, on the basis that they are a reflection of some type of explicitly based conscious performance (Ellis 1991).[3] The main criticisms leveled against acceptability judgement tasks are concerned with validity and reliability.

The validity of the assumption that there is a relationship between linguistic intuitions and a) grammatical competence, b) acceptability judgements and c) the different kinds of underlying norm have been questioned. With regard to the validity of the correspondence between intuitions and competence, Sorace claims that although "psychological laws of the intuitional process are poorly understood, it is indisputable that the use of acceptability judgements and introspective reports has led to the establishment of..a number of significant generalisations about syntactic processes" (1992:2), which would be inexplicable if there were no relationship between grammatical knowledge and expressed linguistic intuition. On the basis of the evidence from Quirk and Svartvik (1966) and Greenbaum and Quirk (1970) she goes on to say that there is an orderly relationship between linguistic competence and intuitional processes and between intuitional processes and performance.

With regard to criticisms such as that the judgement may be affected by extragrammatical factors rather than 'genuine' intuitions, Sorace states that these must be carefully controlled for when selecting test sentences, test design and the subjects. Some of the extragrammatical factors which have to be controlled for are i) the difficulties caused by parsing, ii) the context of presentation, iii) pragmatic considerations and iv) the mental state of the subjects and their linguistic training (see Sorace 1992a, 1995 on these points). Similarly when responding to 'acceptability' subjects could be responding not only to grammaticality but to their opinions about style, content etc. (Chaudron 1983) or 'acceptability' could be perceived as

[3] Sutter and Johnson (1990) point out that although the aim of researchers using judgement tasks is to study underlying competence - competence which should not require an effort on the part of the subject, judgement tasks by their very nature 'require continued and sustained concentration'(Markman 1979:653), thus contravening what it sets out to achieve.

frequency of usage, conformity to a prescriptive norm or prestigious register, or even semantic and pragmatic plausibility (Bard, Robertson and Sorace 1994).

The reliability of judgements has to do with the consistency displayed by different subjects as well as the consistency in the judgements of the same subject in different tests. Sorace (1992a) proposes four reliability criteria for the intuitions of non-native speakers.

(1) To replicate the same test with different subjects belonging to the same speech community. In the case of non-native speakers it is often assumed that the ILG of learners at the same proficiency level, or from the same language background, share common features.

(2) To repeat the same test with the same subjects after a lapse of time. However, given that IL grammars are developing grammars, the interval cannot be too long.

(3) To repeat the same tests with the same subjects using different by equivalent materials. Thus inconsistent responses to different lexical versions would indicate inter-subject reliability. In the case of L2 learners it has been noted that if the subjects are at a low level in proficiency, different judgements could be given to the lexicalisations due to ignorance.

(4) To repeat the same test with the same materials but with different kinds of measurement.

Even though acceptability judgements that rely on intuition are also a kind of linguistic behavior, they are considered better at revealing the underlying grammatical competence than other types of performance data (Coppietiers 1987), because they enables us "to cut a swathe through the large number of performance variables that intervene between knowledge and the processing of knowledge" (Kellerman 1986:36). Apart from abstracting away from the 'learning module' and metalinguistic knowledge, there are further practical reasons against relying exclusively on production data to gauge the underlying grammar in the L2.

These are,

a) performance is said to be affected by the amount of attention to language required by different tasks, i.e. the 'variable competence hypothesis' (Tarone 1988), therefore

depending on the amount of time and attention spent the performance could vary in different tasks.

b) in production, L2 learners have been seen to avoid certain structures that they find difficult (Schachter 1988), therefore the exclusive reliance on performance data would not give an indication of the knowledge underlying certain types of structures.

c) Coppieters notes that "(the differences) in non-native underlying grammars does not surface in readily detectable forms in the speakers use of the language" (1987:545), that is, the difference between a 'divergent' and an 'incomplete' competence is not apparent in spontaneous production[4], and,

d) in developing grammars when several different rules co-exist for a particular aspect of grammar, production data is unable to capture the learner's intuitions with regard to each of them - the level of certainty, intermediate acceptability etc.

e) Production data does not reveal what is ungrammatical in the learner's grammar.

Unlike production data acceptability judgements are also able to indicate hierarchies of acceptability. In other words, rather than indicating the absolute rejection or acceptance of a structure, they are able to indicate the relative acceptability of structures in relation to one another. The notion of relative acceptability is important because it is said that a theory which can explain why, amongst two unacceptable sentences, one is better than the other, is more valuable than a theory which can only explain the difference between a grammatical sentence and an ungrammatical sentence (Martohardjono 1993). Thus, acceptability hierarchies give the researcher an indication of the more subtle and differentiated types of knowledge rather than the categorical distinction between grammatical and ungrammatical strings.

Therefore although the elicitation of acceptability judgements has its drawbacks, so far, no other more appropriate method has been devised to ascertain the structure of the *I*-language. Since this study is an investigation of the underlying competence in the L2, we decided to use intuitional data elicited in the form of acceptability judgements as the means of examining the mental structures and processes in the second language grammar. However, when using acceptability judgement tasks as a test instrument it is necessary to take in to consideration their limitations too. Therefore, following the

[4] See section 3.2.1 for detailed discussion on differences in near-native competence.

recommendations of Sorace (1992b) discussed above, in this study criteria (1), (3) and (4) were used to ensure reliability.

Since we asked for acceptability judgements in this study, it is necessary clarify the difference between 'acceptability' and 'grammaticality'. Sentence may or may not be '*grammatical*' to a linguist with respect to linguistic theory but the term is inappropriate to describe the feelings linguistically naive subjects may have about the well-formedness of sentences. Sentences can only be '*acceptable*' to them with respect to grammatical competence, metalinguistic knowledge, pragmatic appropriateness etc. In addition to this, it has also been seen that certain sentences which are linguistically grammatical are judged unacceptable, and vice versa (Sorace 1992a, Cowart 1989).

In the elicitation of acceptability judgements, judgements are obtained on possible as well as impossible sentences in the language. The rationale for the use of ungrammatical sentences is that "UG consists of negative constraints that, among other things, prevent ungrammatical sentences" (White 1989:45) therefore it is assumed (Felix 1988) that the recognition of the impossibility of ungrammatical structures will take place only if the grammatical principles are in place. The misjudgement of a grammatical structure on the other hand, does not warrant the conclusion that the relevant principles are unknown because a grammatical sentence can be rejected due to stylistic and pragmatic reasons. In addition to this, it has also been claimed (Schachter 1988) that the development in the L2 is a recognition of an even larger number of grammatical sentences, i.e. gestalt learning. Therefore, it has been argued (Zobl 1992) that the type of knowledge grammatical sentences may draw upon may not be the 'grammatical competence' in the Chomskyan senses. By contrast, judgements of 'unacceptable' of ungrammatical strings reflect grammatical competence less ambiguously. In other words, that "UG is an unambiguous source of information for UNgrammaticalities, but only a secondary source for identifying grammatical structures " (Felix 1988:286). Felix therefore concludes that judgements of ungrammatical sentences represent much more reliable data as it is more likely to draw on knowledge derived from mental computations. [5]

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[5] Research which uses grammatical and ungrammatical strings to elicit acceptability judgements record conflicting evidence on the accuracy and uniformity which learners judge the deviant and non-deviant sentences. In several studies (Bialystok 1986, Ellis 1991, Hakes 1980, Sutter and Johnson 1990) it is reported that subjects respond with greater certainty and accuracy to non-deviant strings. In contrast, other studies have found that ungrammatical strings are judged more accurately

Moreover, research using metalinguistic judgements has also shown that deviant sentences could have gradations of acceptability (Sorace 1992a, Bard, Robertson & Sorace 1994) not observed in grammatical sentences. The hierarchy of unacceptability may give the researcher an indication of the nature of the mental representation of the different structures and the changes in the representation that take place in developing grammars.

5.2.2 Types of Measurement

In order to ensure the reliability criterion of both the judgements and the test materials the same materials were tested using two different kinds of measurements. The measurements adopted to gauge linguistic acceptability in this study were:

a) A Rating task which employs an ordinal scale, and
b) A Magnitude Estimation task which produces an interval scale.

5.2.2.1 The Rating Task.

The Rating task asked for acceptability judgements on a 5 point scale with 1 representing the least acceptable sentences and 5 the most. In an ordinal scale

> "a given dimension is divided into a set of subclasses and the items in one category are different to items in other categories but....all items assigned to the same subclass (for example 2 in the scale) must be equivalent with respect to the property that defines that subclass and different with respect to items assigned to other subclasses" (Sorace 1992a:24).

On the other hand, because sentences 'more or less' alike are placed in the same class, category scales have been found wanting. It is noted that 'more limited the resolution of the scale, the more constrained the subjects responses are' (Sorace 1992a:27). This is especially so in a binary scale. However, by extending the number of points in a category scale it is possible to capture the intermediate judgements. Scales including more than three points are statistically more reliable and have better resolution. A further argument for using a 5 point scale rather than a dichotomous one, is because

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(Felix 1988) and with less deviation (Zobl 1992) than grammatical strings. See Hedgecock (1993) for a discussion of these issues.

'yes/no' judgements do not capture indeterminacy, which is a characteristic of IL grammars. The use of a dichotomous scale might leave the researcher with a deceptive impression that the judgements to a particular sentence are determinate when they are inconsistent. The issue of indeterminacy is correlated with validity in the study of ILG, in that it is necessary to capture the indeterminacy (when present) for the judgements to be valid (Sorace 1988). On the other hand if a structure is determinate, it may be less acceptable in relation to another structure and an either/or decision would obscure these differences. However, a five point scale too has its limitations for although an ordinal scale rank orders scale points, it makes no commitment to any other kind of difference between the points and if the aim of the researcher is to study degrees of un/acceptability, it is inadequate. Further, it has been pointed out that although extensively used in research, ordinal scales do not lend themselves to parametric statistical analyses (Bard, Robertson and Sorace 1994).

Therefore in order to ensure that the results obtained portray the linguistic intuitions as accurately as possible, it was decided to replicate the test using another scale, an interval scale, on the same data and with a comparable group of subjects under the same test conditions. If the results obtained from the two tasks coincide then it could be safely concluded that the test instruments are reliable.

5.2.2.2. The Magnitude Estimation Task

Magnitude Scaling is a relatively new technique employed in language acquisition research to measure linguistic acceptability and has been adapted from psychophysics. Magnitude scaling is a procedure used in psychophysics for quantifying physical stimuli on a sensory continuum (Lodge 1981). This involves making proportional judgements about the intensity of sensory continua such as brightness or loudness, where subjects are required to associate a numerical judgement with a physical stimulus. The procedure adopted is to associate a number (one which is decided on either by the by experimenter or by the subject herself) with the initial stimulus. Subsequent stimulus, which are presented in succession, are assigned a number which reflects the relationship between that stimulus and the initial stimulus (Bard, Roberston and Sorace 1994).

This method has been applied to the scaling of social stimuli on a social-psychological dimension and in linguistics to elicit linguistic intuitions about properties for which an objective interval scale is available, for example, to measure speech rate (Green

1987). Linguistic acceptability differs from both psychophysics and linguistics in that it has no obvious 'physical' continuum to plot against the subjects' impressions. However, based on validation studies (see Bard, Robertson and Sorace 1994 for a discussion of this) it is claimed that 'Magnitude estimation can be applied to linguistic acceptability in much the same way as to psycho-social continua'(Bard, Robertson and Sorace 1994:22).

In measuring linguistic acceptability, magnitude scaling requires subjects to assign numbers on the proportionate acceptability of the sentences. For example, the number assigned to the second sentence would be in proportion to the number given to the first test sentence. This produces a proportional, ratio-preserving measurement of opinion strength, that is, an interval scale. In an interval scale all points of the scale while different to one another are also in relation to one another e.g. $x > y > z$. In addition to the relationship, an interval scale also specifies the distance or the interval between two points on the scale; therefore it is capable of capturing degrees (hierarchies) of acceptability between different sentences. This method is relatively new and has been used by researchers investigating hierarchies of acceptability (Sorace 1992a, 1993a).

Among the advantages listed of using magnitude scaling, is the assumption that people are better able to make relative judgements as opposed to absolute judgements. Magnitude estimation also has the advantage of not constraining the number and range of responses available to subjects. Further, unlike category scales interval scales are also isomorphic to the structure of arithmetic, hence allow the application of parametric statistics (Sorace 1992a).

However, there is the drawback in that unlike in psychophysics it is not possible to estimate the acceptability of sentences using objective measures because acceptability is not a metric dimension. Therefore the validity of the linear relation between subjective judgements and the stimulus magnitudes have been questioned (Poulton 1989). Another criticism made against ME is that usually the subjects are untrained observers who are required to use unfamiliar units of measurements. Further problems with using magnitude scaling are its low face-validity, difficulty in understanding the concept of proportionality, and that subjects may respond either linearly or logarithmically, or both.

5.2.3 The Test Materials

The test sentences were designed to elicit judgements on the following areas in the ESL grammar:

a) The presence of the functional category AGR, and the values assigned to the properties of AGR. i. Kase, ii. Number and iii. Person.
b) The values assigned to the properties of TNS.

Different sub-tests were carried out for each of the above areas:

(a) Five sub-tests to test for AGR and its properties in the ESL grammar and,
(c) Four sub-tests to test for the properties of TNS.

The sentences were controlled for length (i.e. number of words) and vocabulary (syllable length and neutral everyday context). The total number of words in a sentences ranged from 7-14, and the longest words have 3 syllables. The order of the stimulus sentences were randomized so that 2 consecutive sentences did not come from the same set i.e. pertain to test the same syntactic construction.

The test sentences were designed in sets to test the acquisition of different syntactic aspects investigated in this study. In a set, the experimental sentence and the control sentence were identical in every respect apart from the grammatical aspect tested. This is a method employed in acceptability judgement tests to ensure that any differences in the level of acceptability of the experimental sentence and the control sentence is due to differences in the syntactic aspect being tested.

The test categories used are shown in figure 5.1 below:

Figure 5. 1: Test Categories

(a)i	1	[+] Verb movement of 'be' over ADV to AGR
	2	[-] Verb movement of 'be' over ADV to AGR
(a)ii	3	Word order, [NP + [V+ AGR + TNS] + XP]
	4	Word order, [NP + [V+TNS]+ XP]
	5	Word order, [NP + V + XP]
	6	Word order, [NP + XP]
(a)iii	7	Overt referential subject, thematic verb
	8	Null referential subject, thematic verb
	9	Overt referential subject, raising verb
	10	Null referential subject, raising verb
	11	Overt expletive subject, thematic verb

	12	Null expletive subject, thematic verb
	13	Overt expletive subject, raising verb
	14	Null expletive subject, raising verb
(a)iv	15	Number agreement, singular, [+] subject-verb agreement
	16	Number agreement, singular, [-] subject-verb agreement
	17	Number agreement, plural, [+] subject-verb agreement
	18	Number agreement, plural, [-] subject-verb agreement
(a)v	19	Person agreement, copula, [+] subject-verb agreement
	20	Person agreement, copula, [-] subject-verb agreement
	21	Person agreement, auxiliary, [+] subject-verb agreement
	22	Person agreement, auxiliary, [-] subject-verb agreement
	23	Person agreement, thematic (main) verb, [+] subject-verb agreement
	24	Person agreement, thematic (main) verb, [-] subject-verb agreement
(b)i	25	3ps.sg -s, as an AGR marker [+] grammatical
	26	3ps.sg -s, as the non-past TNS marker [-] grammatical
(b)ii	27	[-TNS] marker *to*, [+] grammatical
	28	[+TNS] marker *will*, [+] grammatical
	29	no TNS marker, [-] grammatical
(b)iii	30	[+]past tense inflection, regular past tense form, thematic verb
	31	[-] past tense inflection, regular past tense form, thematic verb
	32	[+] past tense inflection, irregular past tense form, thematic verb
	33	[-] past tense inflection, irregular past tense form, thematic verb
	34	[+] past tense inflection, copula verb
	35	[-] past tense inflection, copula verb

Judgements were elicited on 35 sentence types and two tokens were designed for every test sentence type, therefore, there were two experimental and two control sentences in every set. Therefore each subject gave acceptability judgements on 70 sentences. There were two versions of the test, Version A and Version B. Therefore in all (35 x 2) 2 = 140 sentences were tested. (See appendix A3 for a list of the test sentences)

5.2.3.1 Rationale for the Test Sentences

In this section we will set out the rationale for each of the sentence types tested.

(a)i. It was shown in section 2.1.3.3 that in English, when the verb is attached to the progressive aspectual marker *-ing* (which is [+N]), the V+*ing* form does not move up to TNS via head-to-head movement due to the mismatch between the features of TNS and the features of V+*ing*. TNS can attach only to a [+V]

element and V+*ing* is [+N]. Therefore, an expletive verb (either *be* or *have*) is introduced directly under TNS to support the TNS affix. The expletive verbs do not assign theta roles, hence they can move over the adverb [ADV] to AGR to pick up the person and number inflections. The failure of be to move up to AGR over the ADV result in ungrammaticality. Therefore it was hypothesized that V-movement to AGR over the ADV would be a diagnostic for the presence of AGR in the underlying grammar.

1 [+] Verb movement of 'be' over ADV to AGR
John *is* carefully reading the book
2 [-] Verb movement of 'be' over ADV to AGR
John carefully *is* reading the book

(a)ii. In Sinhala non-verbal sentences do not have a verbal element and as discussed in section 4.3.1.2 do not project TNS. Therefore the underlying structure of non-verbal sentences in Sinhala is [NP XP]. In complement sentences (copula sentences) in English on the other hand, the expletive verb be is introduced under TNS to support the TNS and AGR affixes. It was hypothesized that the word order in complement sentences would be a diagnostic (a) for the projection of TNS in complement sentences in the ILG and, (b) projection of AGR in the ILG. In sentence type (3) the copula inserted under TNS moves to AGR, in sentence type (4) there is no verb movement to AGR, in sentence type (5) the copula, though present, does not inflect for TNS and in (6) there is no copula. The rejection of 4, 5 and 6 in comparison to 3 would suggest that AGR is present in the ILG. The rejection of 6 in comparison to 3, 4 or 5 would suggest that TNS is projected in complement sentences.

3 Word order, [NP + [V+ AGR + TNS] + XP]
The musicians who play in 'Maname' are very good
4 Word order, [NP + [V+TNS]+ XP]
The musicians who play in 'Maname' is very good
5 Word order, [NP + V + XP]
The musicians who play in 'Maname' be very good
6 Word order, [NP + XP]
The musicians who play in 'Maname' very good

(a)iii. The Kase feature of AGR in English requires that [Spec, AgrP] be filled by an overt lexical element in all sentences. Therefore, the overt presence of a referential NP is obligatory in sentences with transitive (thematic) verbs. In instances where the verb does not assign an external theta role either an expletive NP is inserted in [Spec, AgrP] or the external argument of the complement must

move to [Spec, AgrP]. Sinhala is a [+ pro-drop] language, hence it allows sentences with null lexical subjects. Sinhala also does not project AGR, hence, there is no Kase grid that requires obligatory saturation. Therefore, Sinhala does not have either expletive subjects or raising of an NP generated in the complement to subject position as in the case of sentences with raising verbs. It was hypothesized that the rejection of sentences with null subjects would indicate the presence of an AGR that assigns Nominative Case to its Spec position.

7 Overt referential subject, thematic verb
Nimal's dog is so fat, *he* looks like a pumpkin
8 Null referential subject, thematic verb
Nimal's dog is so fat, looks like a pumpkin
9 Overt referential subject, raising verb
Leela has got a new boarder. *She* appears pleased with him
10 Null referential subject, raising verb
Leela has got a new boarder. Appears pleased with him
11 Overt expletive subject, thematic verb
Sarath is a perfectionist. *It* angers him to see mistakes
12 Null expletive subject, thematic verb
Sarath is a perfectionist. Angers him to see mistakes
13 Overt expletive subject, raising verb
Sarath has joined the army. *It* seems he likes it
14 Null expletive subject, raising verb
Sarath has joined the army. Seems he likes it

(a)iv. The [+Number] feature of AGR in English requires that the verb agrees in number with the subject pronoun. Sinhala does not project AGR, hence there is no subject-verb agreement. Therefore it was hypothesized that the rejection of sentences without number agreement marking on the verb would indicate the presence of the [+Number] feature of AGR in the ILG.

15 Number agreement, singular, [+] subject-verb agreement
Riding motor cycles *is* dangerous
16 Number agreement, singular, [-] subject-verb agreement
Riding motor cycles *are* dangerous
17 Number agreement, plural, [+] subject-verb agreement
The blue umbrella and the Parker pen *are* his
18 Number agreement, plural, [-] subject-verb agreement
The blue umbrella and the Parker pen *is* his

(a)v. The [+ Person] feature of AGR in English requires that the verb agrees with the person of the subject NP. Since Sinhala does not project AGR, there is no person-agreement marking on the verb. It was hypothesized that the rejection of sentences without person agreement marking on the verb would be an indication

of the [+ person] agreement feature of AGR in the ILG. Since [+Person] agreement in English is salient on the copula and auxiliary (have) verbs, but less salient on main (thematic) verbs judgements were elicited on person agreement marking on all three verbs. A difference in acceptability between the verbs would indicate differences in (a) development and/or (b) in the underlying knowledge representation.

19 Person agreement, copula, [+] subject-verb agreement
During the protest, one of the students *was* beaten up
20 Person agreement, copula, [-] subject-verb agreement
During the protest, one of the students *were* beaten up
21 Person agreement, auxiliary, [+] subject-verb agreement
Pala thinks that John *has* taken the books
22 Person agreement, auxiliary, [-] subject-verb agreement
Pala thinks that John *have* taken the books
23 Person agreement, thematic (main) verb, [+] subject-verb agreement
Your sister generally *leaves* office early on Fridays
24 Person agreement, thematic (main) verb, [-] subject-verb agreement
Your sister generally *leave* office early on Fridays

(b)i. Sinhala marks both past and non-past tense uniformly on all verbs with all persons. It was hypothesized that if L2 learners carry over the values to TNS from the L1 to the L2, the L2 input might be misanalysed in early ILG, in this case, assume that non-past tense is marked uniformly with all persons. A possible candidate for misanalysis as the non-past tense marker is the 3ps.sg *-s*. It was hypothesized that the rejection of sentence type (26), where the *-s* occurs with a subject NP other than the third person singular, in comparison to sentence type (25) would be a diagnostic for resetting of the morphological uniformity parameter. It would be an indication that -s was analysed as an AGReement marker and not a TNS marker.

25 3ps.sg -s, as an AGR marker [+] grammatical
Leela sometimes *misses* the 7 O'clock train
26 3ps.sg -s, as the non-past TNS marker [-] grammatical
I sometimes *misses* the 7 O'clock train

(b)ii. Both Sinhala and English use a modal to mark [+TNS] in finite sentences. In English [-TNS] in non-finite clauses can be marked either by the *to*-infinitive, which is free, or by a bare infinitive. Sinhala has one form to mark [-TNS] which consists of a stem+inflection. In order to test the hypothesis that elements common to the L1 and the L2 are recognised prior to the elements found only in the L2 in the IL continuum, judgements were elicited on ; a

sentence with non-finite marked using *to* (27), a finite sentence with a modal (28) and an ungrammatical sentence with no TNS marker (29). It was predicted that, in the development of the ILG, the sentence with the [+TNS] marker (the modal) will be recognized prior to that with the [-TNS] marker. Recognition will be indicated in the rejection of the ungrammatical sentence in comparison to the grammatical.

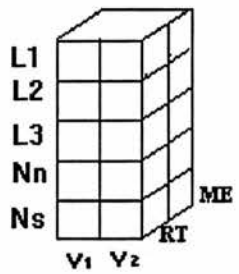
27 [-TNS] marker *to*, [+] grammatical
Ravi wants Rani to sit for the exam
28 [+TNS] marker *will*, [+] grammatical
Ravi hopes Rani will sit for the exam
29 no TNS marker, [-] grammatical
Ravi wants Rani for the exam

(b)iii. These sentences were designed to test the hypothesis that learners carry over both the FC and its properties from the L1 to the L2. Since both languages mark past tense it was hypothesized that learners will reject sentences indicating past actions without a past tense marker (31), (33) and (35) in comparison to (30), (32) and (34) from the earliest stages in the ILG.

30 [+]past tense inflection, regular past tense form, thematic verb
Shanthi and Pala *finished* their essays last night
31 [-] past tense inflection, regular past tense form, thematic verb
Shanthi and Pala *finish* their essays last night
32 [+] past tense inflection, irregular past tense form, thematic verb
Yesterday Shanthi *wrote* a letter to her penfriend
33 [-] past tense inflection, irregular past tense form, thematic verb
Yesterday Shanthi *write* a letter to her penfriend
34 [+] past tense inflection, copula verb
After the match there *were* several fights
35 [-] past tense inflection, copula verb
After the match there *be* several fights

The same sentences were administered in a Rating task and in a ME task. The experimental design can be graphically illustrated as follows:

Figure 5. 2: Experimental Design



RT = Rating task
ME = Magnitude Estimation task
V_1 = Version A.
V_2 = Version B.

L1= Level 1
L2= Level 2
L3= Level 3
Nn= Near-native speakers
Ns= Native speakers

In the Rating task subjects had to judge the acceptability of a sentence on a scale of 1-5. (The instructions to the subjects can be seen in appendix A.1.1).

In the ME task subjects had to assign values to given sentences according to a scale of their own depending on how acceptable they thought each sentence was in relation to the first sentence (see appendix A.1.2 for instructions on how to take the ME task).

Subjects were given 5 seconds to judge each sentence. It has been claimed, especially in formal situations, that there could be a conflict between the metalinguistic and the IL norms due to rule learning. The control of time elicits immediate judgements without the influence of metalinguistic knowledge. It was hoped, therefore, that limiting the time spent on judging a particular sentence would minimize the use of the metalinguistic norms and thus elicit immediate and spontaneous reactions. Timed sentences also prevent subjects from spending too much time on some sentences and too little on others.

5.2.4 Summary

In this section we set out the experimental hypotheses, the rationale for selecting acceptability judgements as the test instrument and Rating and Magnitude Estimation as the measurement of acceptability. We also looked at the experimental design and the test materials. Now we will go on to report how the test was administered.

5.3 Administration of the Test

The first section contains background information regarding the subjects i.e. the level of proficiency in English, age, sex, the institution and courses from which they were selected etc. This is followed by the procedures adopted in administration of the tasks.

5.3.1 The Subjects

Altogether judgements were elicited from 241 subjects of which 217 were ESL speakers whose first language is Sinhalese. 24 native speakers of English formed the control group. The ESL subjects were divided into 4 groups according to the level of proficiency in English: Lower intermediate, higher intermediate, advanced and near native (L1, L2, L3, Near-native).

The ESL speakers were undergraduates from the Open University of Sri Lanka (OUSL) and the University of Kelaniya, Sri Lanka. A majority of the native speakers were part time students at the University of Edinburgh, Scotland.

5.3.1.1 Institution and Course

A. <u>The Open University of Sri Lanka</u>

Two groups of students were used as subjects from the OUSL: The Certificate in Professional English and the LL.B. (English medium).

The OUSL conducts classes in 12 centres in all parts of Sri Lanka. The subjects for the test were selected randomly from groups in Colombo, Kandy, Katunayake and Kurunegala. They were from a wide range of backgrounds and therefore could be considered to represent a cross-section of the Sinhalese speaking ESL learners in Sri Lanka.

The Professional English Course, which is a 2-year course is designed to cater to students wishing to use English for Professional purposes. The entrance requirement is to have offered English as a subject for the Ordinary Level Examination. Applicants are given a placement test at intake. On the basis of the marks obtained at the placement test they are divided into 2 main groups, PE Part I and PE Part II. Those who obtain marks between 10 - 50 are in Part I and are required at the end of the first year to take the Part I examination. If successful they are allowed to proceed to Part

II. Those who score above 50 at the placement test go straight through to Part II and at the end of the year sit for the Certificate in Professional English. The course is recognised by the government of Sri Lanka and is an accepted qualification for employment in the government and private sectors.

Within PE Part I students are further subdivided into classes as A1 to A4 depending on the marks obtained at the placement test, i.e., those who obtain between 10-20 are in A1, 20 - 30 in A2 and so on. The part II students are similarly divided with classes from B1 to B4. Therefore the students of a particular groups for example A3, are comparable in terms of proficiency which ever part of Sri Lanka they follow classes in Professional English.

The other group selected from the Open University were 2nd year undergraduate students from the LL.B. course following lectures in the English medium. These subjects are required to have either passed in English as a subject at the Advanced Level Examination or have a comparable qualification. All lectures, tutorials and examinations are in English, and therefore students have to be near-native speakers of English to cope with the demands of the course. Most of the students in this course are also people employed in the middle rung (i.e. as teachers, government servants, police inspectors etc.) who wish to acquire a degree in law either for advancement in their present positions or for better employment prospects. As such, apart from the paper qualification they are also required to be extremely proficient in English for their day-to-day work.

B. <u>The University of Kelaniya</u>

Two groups of subjects were tested from the University of Kelaniya: The first group were second year undergraduates from the BA in English language and literature. A pass in English at the Advanced Level examination is a prerequisite to enter the BA degree in English program. The demands of the Bachelor of Arts degree in English language and literature in the way of lectures, tutorials and assignments require near-native proficiency in English. These students had also successfully completed the first year examination.

The second group of subjects from the University of Kelaniya were from the Certificate Course in English. All undergraduates in the Arts Faculty are required to take English as a second language. In order to gauge the level of English of the undergraduates entering the degree programs, the university administers a grading

test. All those who obtain over 65 marks at the test are not required to follow the compulsory ESL classes but have the option of taking the Certificate Course in English offered by the English Language Teaching Unit. These subjects have a fairly advanced level of proficiency in English and are comparable in terms of proficiency to the students at the highest level i.e. group B4, in the Professional English Course of the OUSL.

C. University of Edinburgh

The control group of native speakers comprised 21 students from the Continuing Education Department of the University of Edinburgh and 3 graduates of the University of Edinburgh, but not from this department. The subjects from the Continuing Education Department had just completed a literature awareness course.

5.3.1.2 Proficiency in English

As stated earlier, the subjects were already grouped according to proficiency in English by the university placement tests. The subjects were selected from the particular groups, on the basis that they would represent different proficiency levels in ESL. However, we also decided to use an additional criterion to determine the level of proficiency. We used a cloze test, which is considered to be an at-a-stroke measure of overall proficiency (Oller 1973), for this purpose. A well established English proficiency test constructed by Hill and Fenn (1989) (see also Boping 1993) was used. The test consists of four passages and has 45 blanks altogether (see appendix A.2). In scoring. In scoring the Cloze test, an answer was considered as correct only if it was identical to the answer obtained in the model answers.

A correlation was obtained between the university grouping and the scores obtained at the cloze test by using the BMDP bivariate scatter plot programme. The Pearsons product-moment correlation between the variables is R =.892. Since the correlation between the variable is high it was decided to use the scores obtained at the cloze test as the grouping factor.

On the basis of the marks they obtained on the cloze test, the subjects were assigned to four different levels: lower intermediate, higher intermediate, advanced and near native.

1. Lower-intermediate (Level 1)- All those who obtained between 5-15 marks at the cloze test were assigned to this group. Over 90% were from Professional English part I Group A1 (i.e. those who obtained between 10-20 at the placement test).

2. Higher -intermediate (Level 2) - All those who scored between 16 - 25 marks at the cloze test. A majority of them were from the Professional English part I Group A3 (i.e. those who obtained between 30-40).

3. Advanced (Level 3) - Those whose scores were between 26 - 35 marks at the cloze test were assigned to this group. Of the university grouping they belonged to the Professional English Part II Groups B3 and B4 (i.e. those who obtained between 60 - 70) and undergraduates from the Certificate Course in English (those who obtained over 65 at the grading test).

4. Near-native - All those who scored from 36 - 45 were in this group. All the subjects in this group were either second year undergraduates from the English medium LL.B. degree course (OUSL) or second year undergraduates from the BA degree in English (University of Kelaniya).

5. Native speakers - As a matter of interest, these subjects also took the cloze test and the scores ranged from 32 - 45.

In addition, the following measures were also taken to ensure that the subjects had received adequate exposure to subject verb agreement and tense marking in English and to ensure they were familiar with the syntactic structures used in the test items.

1. All of the subjects had at least 5 years of formal education in English as a second language at school level.

2. The courses (from which the subjects were selected) covered the necessary syntactic structures.

3. Discussion with the teachers from the courses who confirmed that their students were very familiar with the syntactic structures in the sentences. In the case of the subjects with the lowest level of proficiency the syntactic structures had been revised and tested in the 3 - 4th weeks of the course. (The subjects at the time of testing were in the 20th week.) Lexical knowledge was controlled for by giving the subjects a list of the vocabulary items occurring in the test one week in advance and by providing an opportunity to discuss the items with their teachers if necessary. The teachers

reported back that the subjects in the lowest level i.e. Level 1 too should have been familiar with the vocabulary from the exposure they had already had in English.

5.3.1.3 Background Information

The subjects completed a background information sheet (see Appendix A.1.4) which asked for information such as age, sex, age at which they were first exposed to English, knowledge of other languages, employment status and educational qualifications. Table 6.1 summarises the background information of subjects for each proficiency level.

Table 5.1: Summary of Background information

	Tota l No:	Sex		Average age	mean age for ESL	knowledge of other languages*	mean cloze score
		F	M				
Level 1	53	38	23	20.2	7.92	16.98%	11.434
Level 2	67	41	26	19.148	7.35	14.92%	20
Level 3	54	36	18	22.5	6.91	14.81%	29.30
Near-native	53	22	31	33.01	6.83	45.28%	41.28
Native speakers	24	19	5	38.01	-	56.52	-

(* a knowledge of at least one other language. There were some subjects in the near-native group who had knowledge of a 3rd language, Tamil which is the L1 of the Tamil speakers in Sri-Lanka.)

In the background information sheet we asked subjects to state their L1 and data from all subjects who had Tamil as their L1 were not included in the analysis as it would affect the results.

It is interesting to note that 60.6% of the subjects were female and only 39.4% were males. This is unusual, because the subjects were not volunteers and the classes to be tested were selected at random from all the courses. It could be that more adult females are learning English as a second language in Sri Lanka than males. In the more advanced groups i.e. advanced and near native the genders are more equally balanced. Even in the native speaker group the female population is much larger than the male. This could also perhaps be due to the fact that more females take an interest in continuing their education in UK than males. The fact that there were more

female subjects in the non-native as well as in the control groups precludes a bias resulting from a gender factor.

5.3.2 Administration of the Test

The test consisted of 3 sections:

a) The acceptability judgement task.
b) Background information sheet
c) The cloze test.

5.3.2.1 Test Equipment

In the administration of the test we used the questionnaire which contained the instructions and the answer script, a tape on which the sentences were recorded and charts on which the sentences were printed.

A. <u>Questionnaire</u>

The questionnaire consisted of the following sections:

a) General instructions and explanations as to what an acceptability judgement task (Appendix A.1).
b) Specific instructions and training on how to perform either the rating task or the ME task (Appendix A.1.1 - rating task, A.1.2 magnitude estimation task).
c) Answer script.
d) Background information sheet (Appendix A.2.1).
e) Cloze test (Appendix A.2).

The questionnaires were professionally printed. Since there were two versions of the test, version A and version B and each version was administered as a Rating task and a ME task, the questionnaires were colour coded for ease of administration.

Version A : Rating task (blue), ME task (yellow)
Version B : Rating task (pink), ME task (green)

All instructions and explanations regarding how to make acceptability judgements, training in each of the tasks and the background information sheet were in the L1 of

the subjects. (In the Appendices A.1, A.1.1, A.1.2 and A.2.1, the instructions in Sinhala can be seen after their English translations)

B. Tapes

The test sentences were recorded on tape in a recording studio and voiced by a Sri Lankan Near Native speaker of English, who is a professional actor and a news reader on the national television network 'The Sri Lanka Rupavahini Corporation'. In reading out the sentences the number of each sentence was read before the sentence itself. An interval of 5 seconds was kept between sentences. Two separate tapes were made for version A and version B.

C. Charts

We decided not to use Overhead projectors due to frequent power failures and the non-availability of OHP's at all of the centres where the test was administered. Instead the sentences were individually presented in two charts of 18" x 12" which were kept at either side of the room. The sentences were professionally printed, one to a page, in letter size 1 1/2". As with the tape, the sentence number preceded each sentence to help the subjects easily identify the sentence they see/hear with the number on the answer script.

D. Assistants

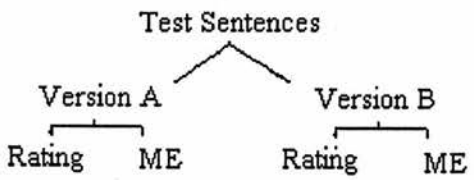
Four research assistants were trained to help with the administration of the test. The research assistants were members of staff from the department of English, Open University of Sri Lanka. All four have the Bachelor of Arts degree in English literature and language and are teachers on the English courses offered at the OUSL. Two were also taking the Postgraduate Diploma in TESL at the university of Colombo.

One of the Research assistants was trained to explain and administer the test as a Rating task. Two of the assistants were in charge of the charts and the fourth divided the class randomly into two groups, gave out the questionnaires and checked student scripts during the training for the tasks to ensure that the subjects understood what was required of them.

5.3.2.2 Procedure

The same version of the test was administered as the Rating task and the Magnitude Estimation task (ME) to two groups of subjects at a comparable level of proficiency. Since we used subjects who were already grouped, half of the class took the same version of the test e.g. Version A, as the Rating task and the other half took it as the ME task as illustrated in figure 5.3.

Figure 5. 3: Administration of versions A and B as Rating and ME tasks.



Subjects were selected randomly to take the test either as the Rating task or the ME task. Version B was similarly administered to a group at the same level of proficiency. For example, if version A was administered to students belonging to Group A3 of the Professional English course in Colombo, version B was administered to students from Group A3 but at a different study centre e.g. Kandy. Thus subjects at the same proficiency level were randomly assigned to take either lexical version A or B.

The table below shows the break down in the number of subjects in terms of task and version.

Table 5.2 The number of subjects in the different tasks and the different versions

	Rating			Magnitude Estimation		
	Version A	Version B	Total	Version A	Version B	Total
Level 1	15	10	25	15	13	28
Level 2	15	17	32	16	19	35
Level 3	13	11	24	12	18	20
Near-native	14	13	27	12	14	26
Native speakers	6	6	12	7	5	12
Total			120			121

Once the class had been divided into two sections and the instructions and questionnaire pamphlet was distributed, the administrator explained what an acceptability judgement test was and how to take it (the instructions were provided on the first page of the questionnaire). Questions and any features that needed further clarification were discussed at this stage. Then the two groups were separated and given instructions and training on the particular task, i.e. the Rating task or the ME task, they were required to take. All instructions, training and questions were in the mother tongue. Practice examples were given during the training for the tasks to prepare the subjects on how the tests should be answered. The examples included both well-formed and ill-formed sentences. In the ME task before practicing on the example sentences, subjects were given practice on line length. Once training was completed, the subjects were brought back together for the actual administration of the test and the two groups (the Rating and the ME) took the test at the same time.

The subjects heard the recorded sentences at 5 second intervals and saw the sentences on the chart simultaneously. Two research assistants turned the pages of the charts to the time dictated by the tape.

The judgement task itself was broken into 2 parts to ease the pressure on the subjects. After the first 45 sentences (which took approximately 5 minutes to administer) the subjects were given a brief break of 5 minutes during which they completed the background information sheet. They were requested not to discuss the test during the break. On completing the second half of the judgement task, they went on to the cloze test. The cloze test was not timed and the subjects took an average of 15 minutes to complete the test. The entire test with explanations/training/breaks and the actual task itself took around 45 minutes to administer.

5.4 Data

In this section we will outline the steps taken in analysing the data and the manner in which the results will be presented.

5.4.1 Data Analysis

In analysing the data the following steps were taken

1. Individual subject files were prepared for both Rating and Magnitude Estimation.

2. ANOVA input matrices were setup to run by subject analysis for both tasks.

3. The statistical package BMDP was used to analyse the data and the data was subject to the following analyses.

a. The raw data with background information in code was analysed to obtain descriptive statistics on the numbers in groups, versions, gender, place, age etc. The 9D program of BMDP was used for this purpose. The results from this analysis was reported in tables 5.1 and 5.2 of this chapter.

b. A correlation was obtained between university groupings according to the placement test and cloze test administered by us. The 6D program of BMDP which produces bivariate scatter plots was used to compute the correlation coefficient between the two variables. The outcome was reported in section 5.3.1.2 of this chapter.

c. A statistical analysis of the raw data from each of the tasks was carried out using 1D of BMDP to obtain descriptive statistics such as mean, mode, median, frequency etc. The results are reported in chapter 6.

d. Analysis of variance tests were carried out with the linguistic factor as the repeated measure. The 2V program of BMDP was used for this purpose. The data from both Rating[6] and Magnitude Estimation were subjected to the following parallel ANOVA tests using different grouping factors:

    i. All of the subjects - i.e. subjects at all levels of proficiency,
    ii. Subjects from the ESL group only i.e. excluding the native speakers.
    iii. Comparison of near-native and native speakers.

ANOVA tests were carried out with only the ESL group to find out if any subtle changes had taken place in the development of the non-native grammar. Such

[6] As discussed earlier, although only an interval scale permits parametric statistics, for the purposes of comparison, the data from the rating task was subject to similar statistical analyses as the data from ME.

changes would have been obscured by the inclusion of data from native-speakers. It has been noted in other similar studies with a cross sectional sample of subjects that Level which was highly significant with the inclusion of native speakers in the analysis was barely significant without (Robertson 1991).

ANOVA tests were carried out with only the near-native and native speakers to enable the direct comparison of the underlying grammar of the two groups whose grammars are the most stable. Since the degree of indeterminacy at near-native level is necessarily less than that during the developing stages, any differences between near-native and native groups can be attributed to different mental representations rather than to a transient grammar.

e. ANOVA tests were also carried out on mean preferences for one sentence type over another with the linguistic factor as the repeated measure.

The mean preference for one sentence type over another, for example, the preference for the grammatical sentence over its ungrammatical counterpart, gives an indication of how *strong* the preference for the grammatical sentence is. That is, the greater the difference in the acceptability of the two sentences, the stronger the preference for one of the sentences. The strength of the preference indicates the determinacy with which the judgement is made: a strong preference indicates a determinate judgement. An ANOVA test on mean preferences will show statistically significant differences between mean preferences across levels and between different sentence types.

The ANOVA printouts for both tasks can be seen in Appendix B.

4. Whereever the ANOVA test proved significant post-hoc Tukey tests[7] were carried out.

In analysing the data from the Rating task we used the arithmetic mean for each sentence for each proficiency level. To analyse the data from the ME task we employed geometric means.[8] It is necessary to use the geometric mean rather than the

---

[7] Tukey Studentized Range. L=q (tabled) Sp/√n. where for a specified α, q is the percentile point of the studentized range distribution with k (n-1) for parameters. (*k* is the total number of means available for comparison and *n* is the sample size).

[8] The general formula for the geometric mean is :

Geometric mean = $\sqrt[n]{x_1, x_2, x_3 \ldots\ldots x_n}$

The geometric mean is the antilog of the mean of logs. The use of logarithms allows muliplication, division and exponentiating to be replaced by the simpler operations of addition, subtraction and multiplication (Lodge 1981).

arithmetic mean to make the scale in the ME task uniform since subjects give their judgements on individual scales rather than a uniform preset scale. On occasion where the subjects response to a particular sentence was '0' since we cannot obtain the log of zero, we replaced the zero with the number representing the mean for that cell minus two standard deviations.

In the case of missing data, in both tasks we replaced missing data with the group mean (for that level and version) for the particular sentence so that the overall mean would not be affected by the missing data.

The subject factor was randomized in the test. Therefore in the ANOVA test, proficiency level and version are blocking/grouping factors and the repeated measures are only for the linguistic factors. This simplifies the statistical analysis of the data. Since the subjects are randomly allocated to the different groups, the results obtained can be more easily generalised. The high margin of error resulting from randomization is countered to some extent by the fact that each subject gave judgements on 2 tokens of the same sentence type. We prefer that the effect of version should not be significant, since if the effect of version is not significant we have grounds for confidence that the sentence tokens in the different version of the test are representative of the type and therefore generalizable.

5.4.2 Presentation of Results

The results will be reported in two sections:

(a) The descriptive statistics obtained from the two types of measurement (i.e. results from the statistical analysis described in 3.c in section 5.4.1 above) is presented in Chapter 6. Here we compare the overall results obtained from the Rating and Magnitude Estimation tasks. A correlation in the results would justify the assumption that the test has succeeded in capturing the linguistic intuitions of the subjects and is not an effect caused by the particular task.

(b) In chapters 7 and 8 we will look at the presence of AGR, its properties and the properties of TNS in the grammars of learners, near-native speakers and native speakers (i.e. results obtained from the statistical analyses described in 3.(d) in section 5.4.1 above).

In the final chapter we will discuss the results and draw from them our general conclusions.

5.5 Conclusion

The objective of this chapter was to set out the stages in the empirical study. The first section comprised the empirical hypotheses, the test instrument and the experimental design. In the second we reported the administration procedure and background information regarding the subjects who participated in the test. The third section outlined the data analysis procedure and the presentation of the results.

Chapter Six

Results 1 - Descriptive Statistics.

6.0 Introduction

In this chapter we hope to achieve two objectives. One is to provide an overview of the descriptive statistics for the raw data prior to the detailed analyses of the results in chapters 7 and 8, where only sections of the data appropriate for each aspect of AGR and TNS are examined. This will enable us to look at general tendencies and overall developmental patterns.

The other main concern of this chapter is the comparison of the two test methods, Rating and Magnitude Estimation. A correspondence of the results obtained from the two tasks will validate the two methods and justify the assumption that the acceptability judgement task itself has succeeded in capturing the linguistic intuitions.

First we will present the overall basic descriptive statistics for both tasks. This will be followed by the score distribution for each task, overall as well as level by level. Next, we will compare the two methods with regard to the results obtained in the ANOVA tests (with a summary of the significant main effects and interactions). Finally, we will provide the reasons for choosing to report the results obtained from only one of the tasks in chapters 7 and 8.

6.1 Basic Descriptive Statistics of the Raw Data

The basic descriptive statistics for all subjects from the Rating task is presented in table 6.1

Table 6. 1: Descriptive statistics: Rating task

	Mean	Std. Dev	Median	Mode
Level 1	3.80	1.486	4	5
Level 2	3.72	1.384	4	5
Level 3	3.77	1.431	4	5
Near-native	3.65	1.476	4	5
Native	3.48	1.644	4	5

Table 6. 2: Descriptive statistics: Magnitude Estimation task

	Arithmetic mean	Std.Dev	Median	Mode	Total number of distinct values used
Level 1	41.216	41.55	249	10	93
Level 2	39.461	39.64	220	10	99
Level 3	55.096	39.62	200	100	83
Near-native	34.17	32.78	175	10	60
Native	27.76	27.85	99	10	35

Table 6.1 shows that in the Rating task the mean acceptability rating decreases from level 1 to native speakers. This suggests that the overall acceptability of sentences decreases with proficiency. The Rating task used a range of numbers from 1-5 therefore the range is 4 for all subjects. The table also shows that both the median and the mode remain the same for all levels of proficiency. This indicates that overall, subjects at all levels of proficiency interpret the points in the rating scale in the same way. The fact that the points in the scale have more or less equivalent values at all levels makes comparison across levels easier.

A comparison of the score range across the proficiency levels in table 6.2 show that in the ME task, there is a negative correlation between the width of the range and level of proficiency as well as between the number of distinct values and the level of proficiency. The lower the proficiency, the wider the range, with native speakers using the narrowest range and the smallest number of distinctive values. (This is in contrast to the pattern observed in the study by Sorace (1992) where native speakers used the widest range). It can also be seen that all non-native subjects use a wider range of numbers than native speakers. The mode for all levels other than level 3 is 10. At level 3 the mode is 100. This suggests that subjects at level 3 employ larger numbers than the other groups.

In both tasks the mean decreases with proficiency suggesting that subjects at lower levels of proficiency are more likely to give higher acceptability ratings while more proficient subjects have the inverse tendency, i.e. they are more likely to give lower acceptability ratings.

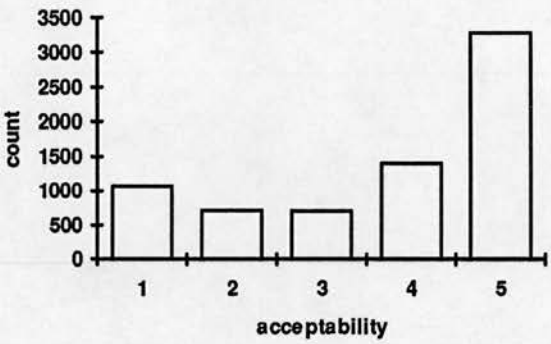
6.2 Score Distribution.

We will now look at the frequency distribution of scores in each task, both overall and level by level.

6.2.1 The Rating Task

The overall frequency distribution of the Rating task is shown in figure 6.1. The 'x' axis shows the acceptability rating and the 'y' axis shows the actual number of times each of the points in the scale were used by the subjects.

Figure 6.1 : Rating Task : Frequency distribution of scores - All subjects



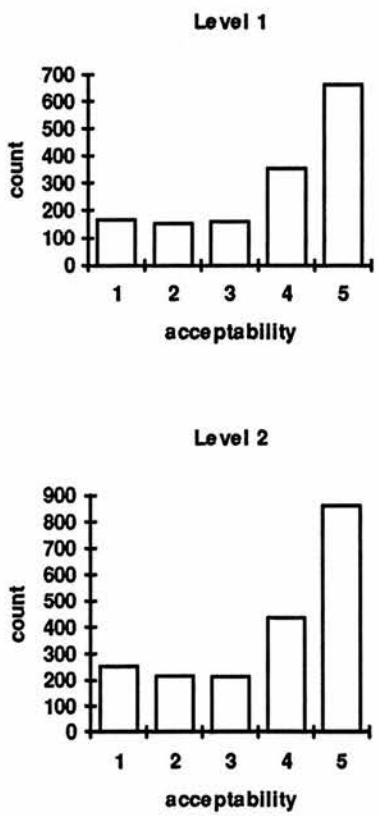
As seen in figure 6.1, point 5, which is the highest extreme for acceptability, has the highest frequency (45.7 %), that is, 5 is the point in the scale that is selected most often by all of the subjects. The balance 54.30% is distributed between points 4, 3, 2 and 1 of the scale. Since point 5 indicates the highest level of acceptability and 1 indicates the lowest, the high frequency in the selection of 5 suggests that there is more consensus across the proficiency levels on grammatical sentences than ungrammatical sentences.

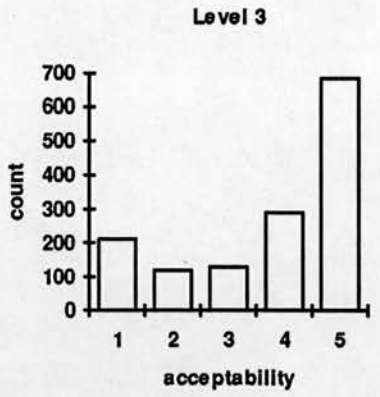
In order to determine whether the frequency with which points in the scale are selected is affected by proficiency in English we looked at the frequency distribution of scores level by level. The data is presented in Table 6.3 and figure 6.2 (a) level 1, (b) level 2, (c) level 3, (d) near-native and (e) native speakers.

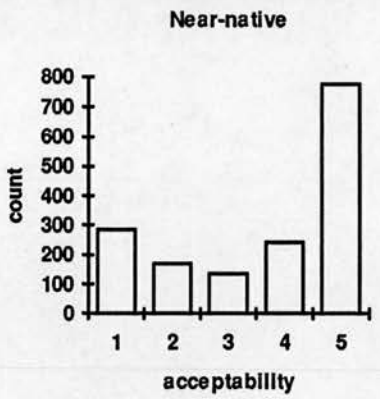
Table 6. 3: Score distribution broken down by proficiency level: Rating task.

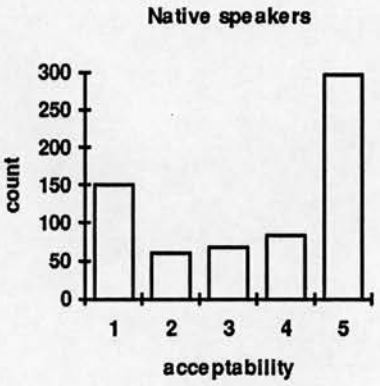
	1 least acceptable	2	3	4	5 most acceptable
Level 1	11.09 %	10.16 %	10.69 %	23.72 %	44.31 %
Level 2	12.72 %	10.85 %	10.80 %	22.12 %	43.48 %
Level 3	14.76 %	8.28 %	8.98 %	20.26 %	47.70 %
Near-native	17.71 %	10.49 %	8.43 %	15.01 %	47.96 %
Native	22.72 %	09.09 %	10.30 %	12.72 %	45 %
All levels	14.9 %	10 %	9.8 %	19.6 %	45.7 %

Figure 6.3: Rating task. Frequency distribution of scores, level-by-level: (a) level 1, (b) level 2, (c) level 3, (d) near-native and (e) native speakers.









A comparison of the score distribution across the levels in table 6.3 shows that the frequency with which some points on the scale are used changes with increasing proficiency. The use of point '1' doubles from level 1 to near-native while the use of point '4' decreases by almost the same proportion. Point '1' denotes the lowest acceptability rating allowed by the scale, therefore, an increase in its frequency suggests an increased recognition of unacceptability with proficiency in English.

The decrease in the use of point '4' from level 1 to native speakers suggests that it is '4' rather than point '3' on the rating scale that captures the indeterminate judgements. Point '4' is closer to the higher end of the scale, therefore these results suggest that when learners are uncertain in their intuitions they tend to give the sentence a higher acceptability rating[1]. The decrease in the use of the intermediate points and the increase in the use of the two extremes, '5' and '1', with proficiency in English also suggests an increase in the determinacy with which judgements are made. In other words, subjects who are more proficient in English show a tendency to decide decisively whether a particular sentence falls in to 1 or into 5 while less proficient subjects are more likely to select a point in the scale which denotes intermediate acceptability. Thus these results show that indeterminacy decreases with proficiency.

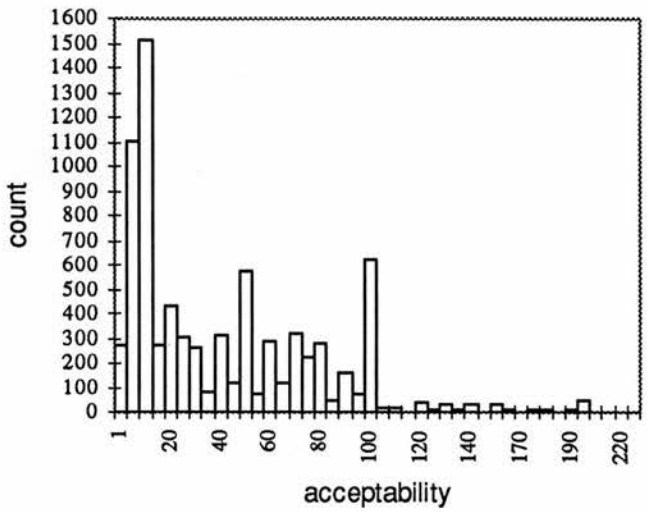
Table 6.3 further shows that the frequency with which point '5' is selected remains almost the same across the levels, between the range of 43.48% - 47.96 %. Of the total number of sentences tested, 48.57 % were grammatical and 51.42 % were ungrammatical. Therefore these results suggest a) that subjects at all levels of proficiency are more likely to recognize grammatical sentences than ungrammatical sentences and b) that there is more uniformity across levels with regard to grammatical sentences than ungrammatical sentences. In other words, it is the unacceptability of deviant sentences that become more uniform with proficiency in English.

6.2.2 The Magnitude Estimation Task

The overall frequency distribution of ME is shown in figure 6.3. The 'x' axis shows the actual numbers selected by subjects (rounded to the nearest 5 for presentation) and the 'y' axis shows the frequency with which each of the numbers were used by the subjects. As discussed in chapter 5, in the ME task subjects assign numbers to sentences depending on their proportion of acceptability and each subject employs her/his own scale. In this instance, the lowest number assigned to a sentence was '1' and the highest number was '250'.

[1] This is in contrast to Bley-Vroman et.al's (1988) claim that when subjects are uncertain about the acceptability of sentences they tend to reject them.

Figure 6.3 : Magnitude Estimation task: Frequency distribution of scores (raw data) - All subjects



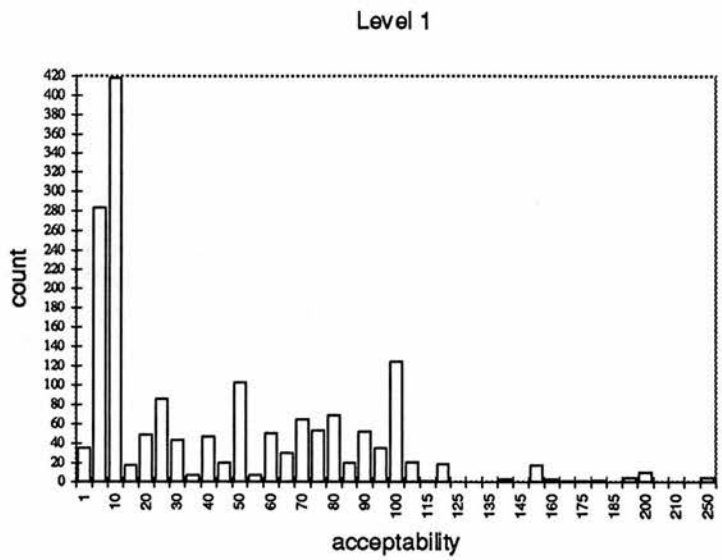
As noted in other studies using Magnitude Estimation as a test instrument, figure 6.3 shows that in the present study too there is an overall preference for numbers between 1 and 10 and denominations of 10. Figure 6.3 also shows that subjects are more likely to use a scale from 1-100 than numbers that are larger than 100.

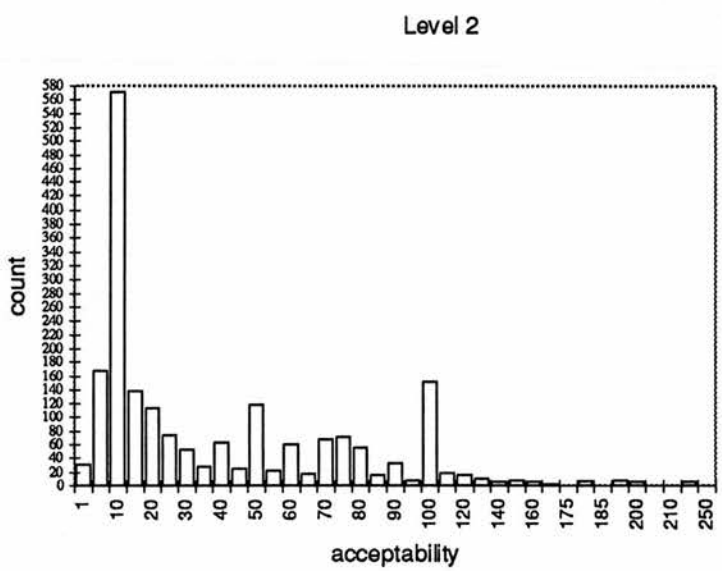
We will now look at the frequency of raw numbers used by subjects at different levels of proficiency reported in Figure 6.4 (a) level 1, (b) level 2, (c) level 3, (d) near-native and (e) native speakers. Table 6.4 summarises the information in percentages.

Table 6. 4 : Magnitude Estimation. Percentage of the frequency of numbers used rounded to 5:

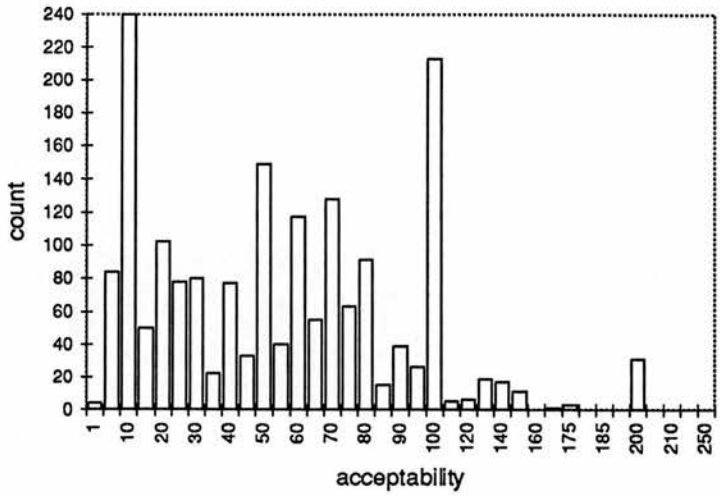
Number	level 1	level 2	level 3	Nn	Ns
1	2.1%	1.6%	0.2%	42%	6.4%
5	16.7%	8.4%	4.7%	11.9%	12.6%
10	24.6%	28.9%	13.3%	23.8%	24.4%
15	1%	7%	2.8%	5.1%	1%
20	2.9%	5.7%	5.7%	4.8%	11.9%
25	5.1%	3.7%	4.3%	6.3%	0.1%
30	2.5%	2.6%	4.4%	5%	2.6%
35	0.4%	1.4%	1.2%	2%	0.7%
40	2.8%	3.2%	4.3%	6.1%	2.3%
45	1.2%	1.3%	1.8%	2%	3
50	6.1%	6%	8.3%	8%	9.6%
55	0.4%	1.1%	2.2%	0.4%	0.2%
60	2.9%	3%	6.5%	2.8%	1.9%
65	1.8%	0.9%	3.1%	0.8%	1.1%
70	3.8%	3.4%	7.1%	2.7%	1.4%
75	3.1%	3.6%	3.5%	2.4%	1.2%
80	4.1%	2.8%	5.1%	1.9%	3.8%
85	1.2%	0.8%	0.8%	0.5%	1.2%
90	3.1%	1.7%	2.2%	1%	11.1%
95	2.1%	0.4%	1.4%	0.4%	-
100	7.3%	7.6%	11.8%	5.8%	3.3%
110	1.2%	1%	0.3%	0.1%	-
115	0.1%	-	-	-	-
120	1.1%	0.8%	0.3%	-	-
125	-	-	-	-	-
130	-	0.5%	1.1%	2%	-
135	-	-	-	-	-
140	0.2-%	0.3%	0.9%	1.5%	-
145	-	-	-	-	-
150	1%	0.4%	0.6%	-	-
160	0.2%	0.3%	-	-	-
170	0.1%	0.1%	0.1%	-	-
175	0.1%	-	0.2%	0.1%	-
180	0.1%	0.4%	-	-	-
185	-	-	-	-	-
190	0.2%	0.4%	-	-	-
200	0.5%	0.3%	1.7%	-	-
205	-	-	-	-	-
210	-	-	-	-	-
220	-	0.3%	-	-	-
250	0.2%	-	-	-	-

Figure 6.4: Magnitude Estimation. Frequency distribution of scores, level-by-level: (a) level 1, (b) level 2, (c) level 3, (d) near-native and (e) native speakers.

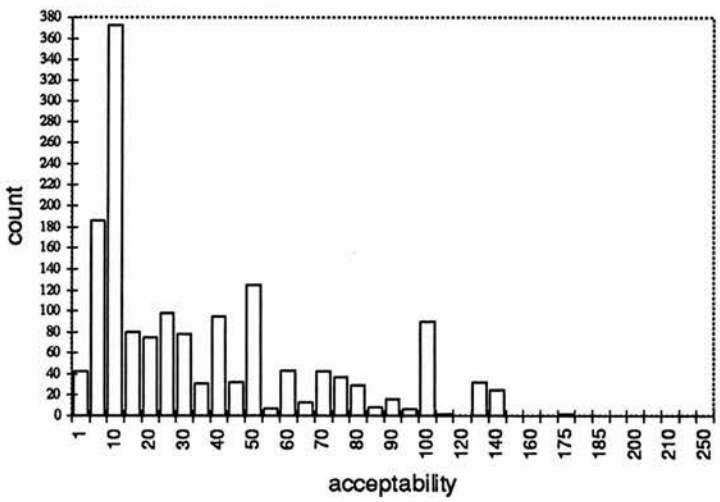


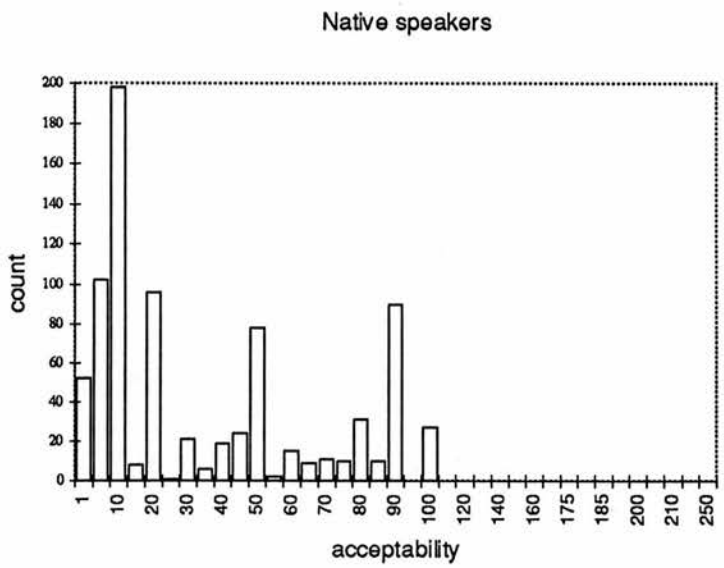


Level 3



Near-native speakers





A comparison of the frequency distribution across levels in figures 6.4 (a), (b), (c), (d) and (e) shows that subjects at level 3 (c) use numbers which numerically higher than subjects at other levels. Figure 6.4 and the percentages in table 6.4 show that all groups have a preference for numbers between 1 and 10 and denominations of 10.

Similar to the Rating data, there is a change in the pattern of frequencies from level 1 to native speakers. The preference for lower numbers e.g. 1 to 5 increase at near-native and native levels. The negative correlation between acceptability and proficiency signal an increase in the recognition of unacceptability with increasing proficiency.

6.2.3 Summary

The acceptability of the grammatical sentences remains more or less the same across the proficiency levels. In both tasks, subjects at lower levels of proficiency have a tendency to give higher acceptability ratings to sentences while subjects at higher levels of proficiency tend to give lower acceptability ratings. Thus, it is the ability to recognize the ungrammaticality of deviant sentences that change with increasing proficiency. The evidence from the Rating task also shows a positive correlation between the determinacy with which judgements are made and proficiency.

The evidence from existing studies on the issues of accuracy, uniformity and the ease with which well-formed and deviant strings are judged by learners is conflicting. Felix (1988) and Zobl (1992) claim that judgement scores testing intuitions on ungrammatical sentences display less variability than judgement scores on grammatical sentences. Gass (1983) adopting a similar view point suggests that error detection is easier than the confirmation of well-formedness. Conversely, Ellis (1991) claims that learners frequently judge well-formed sentences more accurately than they judge deviant sentences, and that the IL competence is insufficient for detecting subtle malformations in the ILG. Bialystok (1986) too, on examining numerous studies using acceptability judgements, comes to the conclusion that deviant sentences are more difficult for learners to evaluate than grammatical forms. The data from the present study supports the latter position, where it is seen that the judgements on the deviant sentences are less determinate than the judgements on the well-formed sentences in early and intermediate IL grammars (i.e. at levels 1, 2 and 3).

It is argued that the recognition of ungrammaticality is far more likely to draw on linguistic competence and UG than the recognition of grammaticality (Zobl 1992, Felix 1988, Schachter 1988). Several arguments have been put forward to substantiate this claim. According to Schachter (op.cit), L2 development is the recognition of an even larger number of grammatical sentences, i.e. pattern learning and not UG. The recognition of ungrammaticality on the other hand, has to come from knowledge derived from mental computations or UG. Another argument for the connection between UG and the recognition of deviant sentences states that "the primary function of UG is to provide the learner with information as to which structures are UNgrammatical , since there is no other (negative) evidence available to the language learner. If a given construction violates (a) principle(s) of UG, the learner will know for sure that this construction must be ungrammatical" (Felix 1988:288). Zobl and Felix (1994) further elaborate their position by arguing that a mind equipped with UG and its language-specific parameterization has perfect knowledge of its languages and is thus able to know if a given structure is grammatical. To summarise the argument, the recognition of ungrammaticality is possible only if the principles of UG or the relevant parameter values are in place. The increase in the recognition of ungrammaticality with proficiency, in this case, suggests that more sentences which violate the parameter settings of the L2 are being recognized. In other words, as more and more parameters, or FCs are assigned values appropriate to the TL, more and more sentences which violate these parameter values are recognized.

6.3 Overview of the Analysis of Variance

Results from both the Magnitude Estimation task and the Rating task were subjected to similar statistical analyses; ANOVA tests were followed by post-hoc Tukey tests where significant. However, it is necessary to point out that although this enables a direct comparison of the two methods and provides a common basis for comparison of results, only Magnitude Estimation produces an interval scale of measurement that legitimately allows the application of parametric statistics. Although ordinal scales, in principle, deny this type of statistical analyses, parallel analyses were carried out for the two tasks since we employed an identical research design in data collection. Previous studies in second language acquisition too have carried out parameteric statistical analyses on rating data.

To measure the sensitivity of the different methods: Rating and Magnitude Estimation, to the variation in acceptability, the number of statistically significant effects and interaction produced by each task were counted. Table 6.5 is a summary of the significant effects and their probability levels in the by-subject analysis with all of the subjects (the complete ANOVAS are provided in Appendix B). The overall number of significant effects obtained with Rating and Magnitude Estimation for each grouping of subjects, i.e. all levels, ESL group and near-native vs. native speakers are reported in table 6.6.

Table 6. 5: Number of significant effects and interactions for Rating and Magnitude Estimation (ME) (all ANOVAs combined)

	*	**	***	****	ns
Rating	24	27	24	102	375
ME	31	29	19	88	385

**** = p ≤.0001; *** = p ≤.001; ** = p ≤.01; * = p ≤.05; ns = non significant

Table 6. 6: Total number of significant effects and interactions for Rating and ME for each grouping of subjects.

	All levels	ESL	Nn vs. Ns
Rating	68	68	41
ME	61	60	46

the recognition of ungrammaticality to being a consequence of more values to parameters being set to those of the TL.

In chapters 7 and 8, we will subject the data to detailed analyses for the development of AGR and TNS in the L2 grammar.

Chapter Seven

Results 2 - AGR IN THE SECOND LANGUAGE GRAMMAR.

7.0 Introduction.

In this chapter we will look at AGR in the second language grammar; its development in the interim grammars and the knowledge representation at ultimate attainment.

In the first section we will focus on the results obtained from the tests using word order as the diagnostic for verb movement to AgrP. In the subsequent section we will look at the values assigned to the properties of AGR in the second language grammar.

In presenting the results the syntactic structure and example test sentences will be followed by the details of the statistical analyses used. This is succeeded by the presentation of the data and a brief discussion.

7.1 'Activation' of AGR - Word order as a Diagnostic.

To discover whether the functional category AGR is instantiated in the grammar of Sinhalese learners of English acceptability judgements were elicited on sentences with alternative word orders. We carried out two subtests on different types of sentences: verb movement to AGR over the ADV in progressive aspect sentences and V-movement to AGR in complement sentences[1]. Recall that it was predicted in H1 (section 5.1.2),

1) AGR will not be present in early ILG hence subjects at lower levels of proficiency will not express a significant preference[2] for sentences with verb movement to AGR. There will be indeterminacy.

2) AGR will be instantiated in the underlying grammar of the L2 with increasing proficiency, hence, subjects at advanced levels will distinguish significantly between sentences with and without verb movement to AGR.

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[1] copula sentences.

[2] A preference will be considered significant only if the preference for the grammatical sentence over the ungrammatical is statistically significant. If a statistically significant preference is not expressed for the grammatical sentence, the ungrammatical sentence cannot be considered as rejected.

7.1.1 The Position of Adverbs.

In this section we will look at the judgements given to sentences that require verb movement to AGR over the ADV.

Sentence type	Example
a) [+] movement of *be* over ADV to AGR via TNS :	John is carefully reading the book
b) [-]movement of *be* over ADV to AGR via TNS:	John carefully is reading the book.

In order to test the hypotheses (1) and (2) above the following ANOVA tests were carried out:

a) An Analysis of variance test with repeated measures for Attribute type i.e. [+/- V-movement to AGR] with proficiency level and lexical version as grouping factors. (See Table 1-1, Appendix B.1.1).

   Three parallel tests were carried out with proficiency levels grouped as follows: all levels, the ESL group only and near-native and native speakers only. Unless otherwise stated, the results that are discussed will be from the main ANOVA test carried out with All subjects. The ANOVA tests with the subsets of subjects will be referred to in instances where they show differences to the main ANOVA test.

   (A full set of ANOVA tables for the tests carried out with *all levels* can be found in Appendix B.1.1. ANOVA tables for the ESL group only are presented in appendix B.2.1 and the ANOVA tables for comparing near-native speakers with native speakers can be found in appendix B.3.1)

b) Post-hoc Tukey tests were carried out where the ANOVA test proved significant.

Results

The results are presented in table 7.1 and accompanying graph, figure 7.1.

Table 7. 1: Mean acceptability rating for verb movement to AGR.

	[+] movement to AGR	[-] movement to AGR
level 1	3.9600	3.1800
level 2	4.4848	2.6818
level 3	4.4792	2.8546
Nn	4.6111	2.9259
Ns	4.9091	2.9545

Legend: Nn=near-native, Ns=native speakers.

Figure 7.1 is a graphical representation of the data in table 7.1.

Figure 7.1: Mean acceptability rating for sentences with and without verb movement to AGR over the Adverb.

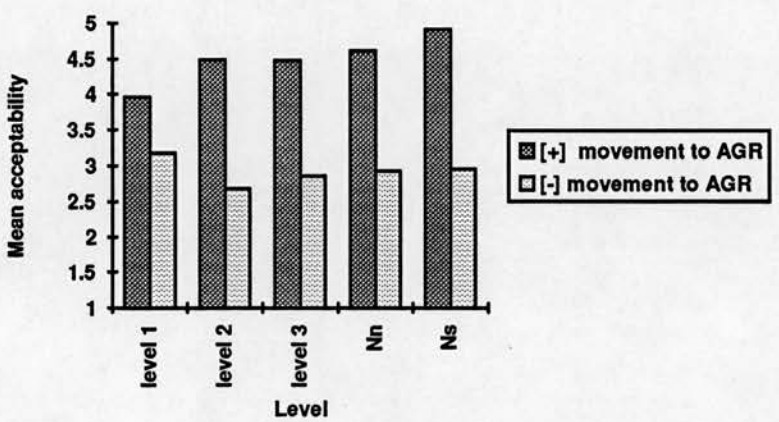


Figure 7.1 shows that subjects at all levels of proficiency make a distinction between sentences with and without V-movement to AGR. This is statistically confirmed by a main effect for Attribute type in the ANOVA test ($F[110,1]=182.88$ $p<.0001$) and Tukey tests show that the grammatical sentences are significantly preferred to the ungrammatical ones. The next question is whether the preference for the grammatical sentence has a developmental dimension. Figure 7.1 shows that the preference for the grammatical sentence is less at level 1 than at other levels. The ANOVA test indicates

a significant interaction between Level[3] x Attribute type (F[110,4]=3.51 p<.009). Tukey tests show (at a tabled value of 4.47) that the preference for the sentence with verb movement to AGR over the sentence without verb movement to AGR is significant from level 2 onwards. This indicates that subjects at level 1 do not decisively reject the sentence without verb movement to AGR, but subjects from level 2 onwards do.

Discussion

The absence of a significant preference for either sentence type at level 1 indicates that the judgements are indeterminate. This can be attributed to the absence of AGR in the underlying grammar at this stage. The decisive rejection of the sentence without verb movement to AGR at level 2 can be taken as an indication that AGR is instantiated in the ILG at level 2. The evidence confirms both predictions: a) that the judgements at lower levels of proficiency will be indeterminate due to the absence of AGR and b) that AGR will be instantiated in the underlying grammar with increasing knowledge of English.

7.1.2 V-Movement in Complement Sentences.

We hypothesised in Chapter 5, that the appearance of the copula in complement sentences would be a diagnostic for the development of both AGR and TNS in the ILG.

Sentence types tested	Example sentence
a) Complement sentence with the verb inflected for AGR & TNS, [NP[V+TNS+AGR]XP] :	The girls who play net ball for Sri Lanka are very tall.
b) Complement sentence with *BE* inflected only for TNS, [NP[V+TNS]XP] (default inflection '*is*'):	The girls who play net ball for Sri Lanka is very tall.
c) Complement sentences with uninflected copula, [NP+V+XP] :	The girls who play net ball for Sri Lanka be very tall.
d) Complement sentences without the copula, [NP + XP] :	The girls who play net ball for Sri Lanka very tall.

[3] In the ANOVA tables presented in appendix B the word 'grade' is used instead of 'Level'. The reason for using 'grade' in the statistical analysis is to fulfill a requirement of the statistical package BMDP which requires that no two variables start with the same letter. Therefore to avoid confusing level with lexical version the word 'grade' was substituted.

In addtion to hypotheses (1) and (2) which we repeated at the beginning of this analysis (section 7.1), we also predicted (in section 5.1.2) that,

3) in early ILG learners will transfer TNS and its properties from the L1 to the L2. Hence, they will accept sentences which are grammatical in the L1 but ungrammatical in the L2. i.e. complement sentences without verbs.

According to the hypotheses (1), (2) and (3) above,

1. subjects at lower levels of proficiency will not distinguish between sentence type (a) and sentence types (b), (c) and (d),

2. when AGR is instantiated in the ILG, sentence type (a) will be preferred to sentence types (b), (c) and (d) where there is no verb movement to AGR.

3. learners will transfer TNS and its properties from the L1 to the L2. Hence, sentence type (d) will not be rejected in early ILG. When the values to TNS have been reset sentence type (a) will be preferred to sentence type (d).

The following ANOVA tests were carried out.

a) An Analysis of variance test with repeated measures for Sentence Type with Proficiency Level and Lexical Version as grouping factors. (See Table 2-1, appendix B.1.1).

b) An ANOVA test on the mean *preference* for the grammatical sentence over each of the ungrammatical sentences i.e. the mean obtained by subtracting the acceptability of the ungrammatical sentence from the grammatical. (Table 2-2, appendix B.1.1).

c) Post-hoc Tukey test where the ANOVA test proved significant.

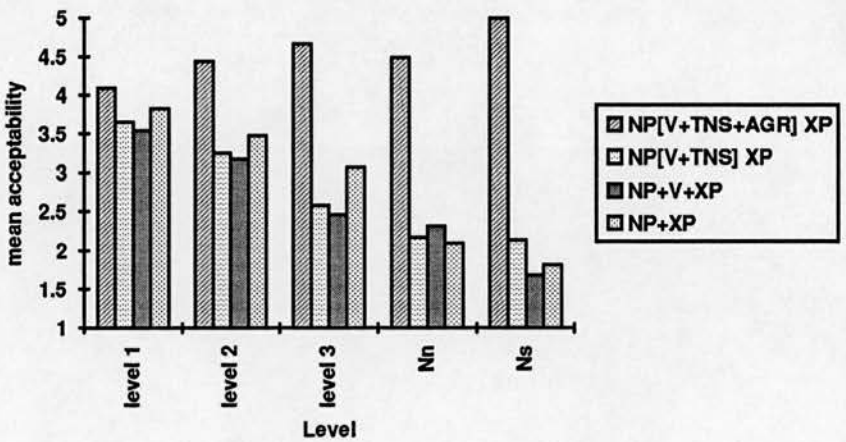
Results

Table 7. 2: Mean acceptability rating for the grammatical and ungrammatical complement sentences.

	Grammatical	Ungrammatical		
	NP[V+TNS+AGR]XP	NP[V+TNS]XP	NP+V+XP	NP + XP
level 1	4.093	3.654	3.54	3.82
level 2	4.4394	3.2424	3.1667	3.4666
level 3	4.6667	2.5833	2.4583	3.0625
Nn	4.4864	2.1667	2.3148	2.0926
Ns	5.0	2.1364	1.6818	1.8182

The data in table 7.2 is graphically represented in figure 7.2

Figure 7.2: Mean acceptability rating for the grammatical and ungrammatical complement sentences.



The following trends can be observed from figure 7.2. The judgements given by subjects at different levels of proficiency are not uniform; at level 1 all the sentences are more or less equally acceptable but the acceptability rating of some sentences decrease with increasing proficiency. The difference between proficiency levels in the overall mean acceptability of sentences is statistically confirmed in the main effect for Level in the ANOVA test ($F[110,4]=11.31$ $p<.0001$). Tukey tests (tabled value 3.86) show the difference between level 1 and native speakers is significant indicating a difference in the perception of the sentences at level 1 and native speaker level. Since

three of the four sentences tested here are ungrammatical, we attribute the significant decrease in the overall acceptability from level 1 to native speakers to the decrease in acceptability of the ungrammatical sentences with increasing proficiency.

Figure 7.2 also shows that all subjects, especially those at more advanced levels of proficiency make a distinction between the sentence types. The ANOVA test shows a main effect for Sentence Type ($F[330,3]=97.18$ $p<.0001$) and Tukey tests (tabled value 3.63) indicate that the overall preference for the grammatical sentence (a) (NP[V+TNS+AGR]XP), over each of the ungrammatical sentences (b), (c) and (d) is significant. This suggests that subjects at all levels express a preference for the grammatical sentence. The question is whether this preference has a developmental dimension.

As noted above the preference expressed for the grammatical sentence is less marked at level 1 than at other proficiency levels. Figure 7.2 also shows that non-native subjects other than those at near-native level find the ungrammatical sentence (d) less unacceptable than the other two ungrammatical sentences. The ANOVA test shows the interaction between Sentence type x Level is significant ($F[330,12]=6.64$ $p<.0001$). Tukey tests show (tabled value 5.01) that the preference for the grammatical sentence over the ungrammatical sentence types (c) (NP+V+XP) and (b) (NP[V+TNS]XP) is significant from level 2 onwards. This suggests that subjects at all levels other than level 1 decisively reject complement sentences where the verb does not move to AGR. The results corroborate the evidence from the previous test: AGR is present in the ILG by level 2 and there is indeterminacy with regard to AGR at level 1. The Tukey tests also indicate that the preference for the grammatical sentence over the complement sentence without a verb, type (d) (NP + XP), is significant only at level 3. This indicates that subjects at levels 1 and 2 do not reject the sentence which is grammatical according to the values of TNS in the L1, but subjects from level 3 onwards do.

To summarise, subjects at level 1 do not express a significant preference for any of the four sentences while subjects at level 2 decisively reject sentences without verb movement to AGR. However, they do not reject complement sentences without a verb. From level 3 onwards all 3 ungrammatical sentences are rejected in comparison to the grammatical. Therefore, of the three ungrammatical sentences the last to be recognised as ungrammatical in the IL continuum is the (NP + XP) sentence that is grammatical in the learners L1.

The ANOVA test also indicates that there is a main effect for lexical version. An examination of the means show that the overall mean acceptability rating for lexical version 1 is higher than for lexical version 2. There is also an interaction between Lexical Version x Sentence Type and Tukey tests show that the difference between lexical version 1 and 2 is significant in sentence type (b) (NP+V+XP). Overall, lexical version 1 is given a significantly higher acceptability rating than lexical version 2. There is no interaction with level. Therefore the judgements of subjects at a particular proficiency level are not affected by version. The difference between versions could be due to subjects who saw lexical version 1 using the higher end of the scale than those who saw lexical version 2.

Preferences

The ANOVA on the mean preferences was carried out to ascertain whether there is a difference in the developmental patterns of the ungrammatical sentences, and, to see whether the sentences were represented differently in the underlying grammars of native and near-native subjects. The results are reported in table 7.3 and figure 7.3.

Table 7. 3: Mean preference for the grammatical (NP[V+TNS+AGR]XP) sentence over the ungrammatical (NP[V+TNS]XP), (NP+V+XP) and (NP + XP) sentences.

	Pref. over NP[V+TNS]XP	Pref. over NP+V+XP	Pref. over NP + XP
level 1	0.439	0.553	0.273
level 2	1.1969	1.2727	1.0758
level 3	2.0833	2.2083	1.6042
Nn	2.3198	2.1716	2.3938
Ns	2.8636	3.3182	3.1818

Figure 7.3: Mean preference for the grammatical sentence (NP[V+TNS+AGR]XP) sentence over the ungrammatical (NP[V+TNS]XP), (NP+V+XP) and (NP + XP) sentences.

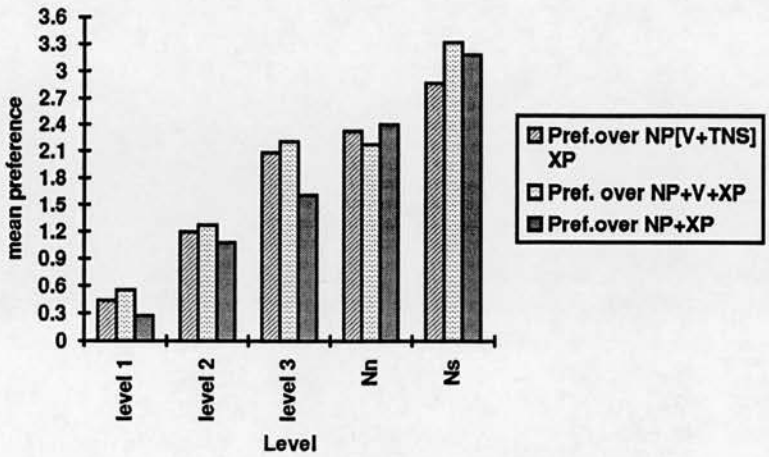


Figure 7.3 reflects the pattern of development outlined earlier. It shows clearly that up to level 3, of the ungrammatical sentences the least unacceptable is the sentence which matches the structure of complement sentences in the learners L1, [NP + XP].

Figure 7.3 also shows that the preference for the grammatical sentence over all 3 ungrammatical sentences increases with increasing proficiency. There is a main effect for Level in the ANOVA test carried out on the mean preferences ($F[110,4]=18.77$ $p<.0001$) (table 2-2, appendix B.1.1). Tukey tests show (tabled value 3.86) that the increase in preference for the grammatical sentence between level 1 and 3, as well as between level 2 and near-native is significant. This indicates an overall increase in the preference for the grammatical sentence from level 1 to near-native. The change in the mental representation of the structure of complement sentences is also seen in the increase in inter-level significances from level 1 to near-native.

It was noted earlier that subjects from levels 3 onwards decisively reject all three ungrammatical sentences. However, when we compare the preferences shown by the near-native speakers with that of native speakers in figure 7.3, we can see that the preference expressed by native speakers for the grammatical sentence over all 3 ungrammatical sentences is higher. In order determine whether the difference between the two groups is significant, we looked at the parallel ANOVA test carried out with only near-native and native speakers (see table 2-2, appendix B.3.1). There is a main effect for Level ($F[34,1]=6.67$ $p<.01$) which confirms a difference in the overall

preference for the grammatical sentence between these two groups. This suggests that although near-native speakers reject complement sentences without V-movement to AGR and TNS the judgements are less determinate than that of native speakers.

Discussion

The indeterminacy at level 1 can be attributed to the absence of AGR in the underlying grammar at this stage in the ILG. This confirms our prediction that intuitions with regard to aspects not activated in the L1 grammar are indeterminate in early ILG. The significant rejection of the sentences without verb movement to AGR from level 2 can be interpreted as an indication that the functional category AGR is instantiated in the L2 grammar at this stage. These results coincide with the results from the distribution of adverbs. Our predictions that AGR will not be present in early ILG but that it will be activated with increasing proficiency are borne out. The rejection of the [NP + XP] sentence also indicates that the obligatory nature of a lexically filled AGR is present in the ILG.

The ability to decisively reject the complement sentence [NP + XP] at level 3 suggests that the TNS parameter is reset. It was also seen that of the ungrammatical sentences, the [NP + XP] sentence where the values of TNS match that of the L1, is the last to be rejected in the developmental continuum. This confirms the predictions: one, that learners will transfer FCs and their properties from the L1 to the L2 in early ILG and therefore sentences which are ungrammatical in the L2 but grammatical in the L1 will not be rejected in early ILG. Two, our hypotheses that learners take longer to 'reset' parameters than 'activate' new parameters is borne out. Learners reject sentences without verb movement to AGR at level 2 but only recognise the ungrammaticality of the difference in values to TNS in complement sentences at level 3.

Although the properties of TNS have been 'reset' and complement sentences project TNS in the L2 grammar, the near-native judgements are not as determinate as those of native speakers.

The next question that arises is whether the values assigned to the features of AGR thus instantiated in the L2 grammar are similar to that of English. We will investigate this in the next section.

7.2 Properties of AGR.

In the previous section it was established that the functional category AGR is instantiated in the underlying grammar of Sinhalese learners of English at level 2. We will now report the results obtained from test sentences designed to elicit judgements on the feature composition of the AGR instantiated in the ILG.

The features of AGR investigated;

a) Kase
b) Number
c) Person

The judgements given by subjects to sentences testing the features of AGR will be examined in turn followed by a brief discussion of the values assigned to each feature. We will conclude this section by tracing the development of these features through the intermediate stages in the ILG and a summary of the feature composition of AGR in the ESL grammar at near-native level.

7.2.1 The Kase Feature of AGR

We will briefly summarise the arguments from linguistic theory pertaining to the Kase feature of AGR in English (see chapter 4 for the detailed analysis). AGR assigns structural Nominative Case to its Specifier. In order to saturate the Kase grid,

(1) the overt presence of a referential NP in subject position [Spec, IP] is obligatory in sentences with transitive verbs (and unergative verbs), henceforth known as thematic verbs and,

(2) when the verb does not assign an external theta role and [Spec,VP] is empty at d-structure :
   i. either an expletive NP in [Spec, IP], or
   ii. the movement of the internal argument to [Spec, IP] in sentences with raising verbs is obligatory.

The eight sentence types examined in this part of the analysis contain overt and null subject NP's; referential and expletive, with thematic verbs and raising verbs.

Sentence type	Example
a) [+] referential subject, thematic verb:	John's brother is very greedy. He eats like a pig.
b) [-] referential subject, thematic verb:	John's brother is very greedy. Eats like a pig.
c) [+] referential subject, raising verb :	Sarath has joined the army. He seems to like it.
d) [-] referential subject, raising verb :	Sarath has joined the army. Seems to like it.
e) [+] expletive subject, thematic verb :	Sunil is always out. It bores him to stay at home.
f) [-] expletive subjects, raising verb :	Sunil is always out. Bores him to stay at home.
g) [+] expletive subject, thematic verb :	Sarath has joined the army. It seems he likes it.
h) [-] expletive subjects, raising verb :	Sarath has joined the army. Seems he likes it.

Recall it was predicted in chapter 5 that,

1) AGR will not be present in early ILG, hence features of AGR will not be recognised, i.e., there will be indeterminacy with regard to saturating the Kase feature. This will be manifested in the absence of a significant preference for sentences with an obligatory overt subjects over sentences with null subjects.

2) A preference for the grammatical sentence over the ungrammatical will indicate that the Kase feature is present at that stage in the ILG.

3) If the values assigned to Kase are similar to those of English, the near-native judgements will coincide with that of native speakers. If the features are different, the judgements will be different to those given by native speakers.

In order to test these hypotheses the following statistical analyses were carried out.

(a) A five-way ANOVA with repeated measures (Subject type x Verb type x Attribute type (+/- overt subject)) with proficiency level and lexical version as grouping factors. (Table 3-1, appendix B.1.1).

(b) A three-way ANOVA (Verb type x Attribute type) with proficiency level as the grouping factor on the mean *preference* for sentences with referential subject over sentences with expletive subjects. (Table 3-2, appendix B.1.1).

(c) A three way ANOVA (Verb type x Subject type) with proficiency level as the grouping factor on the mean *preference* for sentences with overt subjects over sentences with null subjects. (Table 3-3, appendix B.1.1).

(d) Post-hoc Tukey tests were carried out between pairs of means where the ANOVA proved significant.

Results

Table 7. 4: Mean acceptability for overt or null referential / expletive subject NP's in sentences with thematic and raising verbs.

	Thematic verb				Raising verb			
	Referential subject		Expletive subject		Referential subject		Expletive subject	
	+ ref	- ref	+ exp	- exp	+ ref	- ref	+ exp	- exp
level 1	4.06	4.58	3.5	3.38	4.02	3.96	3.6	3.54
level 2	4.3636	4.4697	3.3787	2.8333	4.2121	3.8030	3.2272	3.0757
level 3	4.6666	4.3125	3.8333	2.8218	4.5	3.8463	4.0000	3.1458
Nn	4.4814	3.7037	4.3888	2.5370	4.7222	3.5925	4.5223	3.0
Ns	4.9090	3.0511	4.4090	2.5454	4.8636	3.0909	4.7727	2.7727

Legend: ref=referential subject, [+]= with subject, [-]= without subject.

Figure 7.4 is a graphical representation of the data in the tables. Graph 7.4a shows the mean acceptability rating for sentences with thematic verbs and graph 7.4b represents the mean acceptability ratings for sentences with raising verbs.

Figure 7.4a: Overt and null Referential/Expletive subjects in sentences with a Thematic Verb

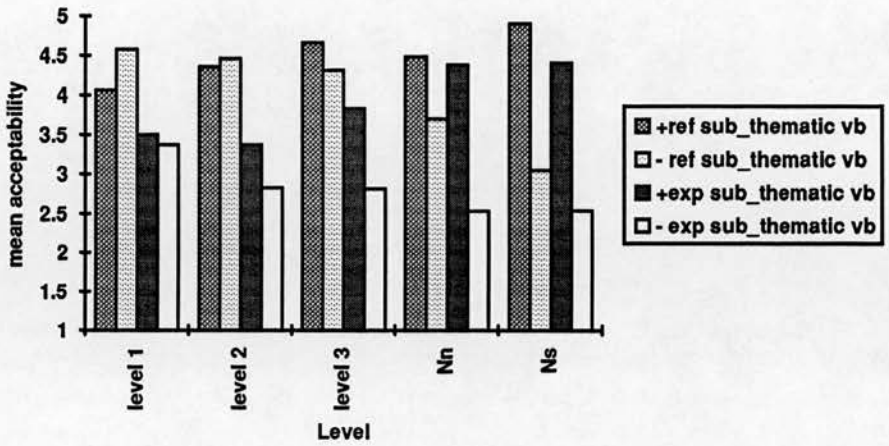
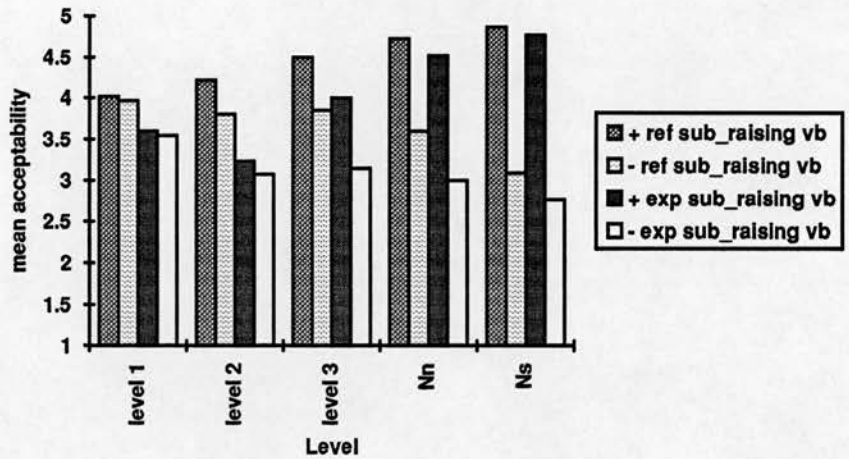


Figure 7.4b: Overt and null Referential/Expletive subjects in sentences with a Raising Verb



We will look at the results in stages. First we will compare the acceptability of sentences requiring referential subjects with those requiring expletive subjects. Second, we will examine differences between referential and expletive subjects in sentences with thematic verbs and raising verbs. Third, the focus will be on differences in acceptability between sentences with overt and null subjects. This will be followed by a comparison of the acceptability of overt and null referential subjects with overt and null expletive subjects. Lastly, we will look at the interaction between all of the variables; differences in acceptability between overt and null referential and expletive subjects in sentences with thematic and raising verbs.

Figures 7.4a and b show that sentences with referential subjects (both overt and null) are judged to be more acceptable than sentences with expletive subjects especially at lower levels. The overall mean acceptability confirms this; the overall mean for referential subjects (4.1831) is higher than the overall mean for expletive subjects (3.4256). This difference is significant in the ANOVA test where there is a main effect for subject ($F[1,110]=138.64$, $p<.0001$). This suggests a general preference across all levels for sentences with referential subjects over sentences with expletive subjects. The question arises as to whether this preference interacts with the level of proficiency. The ANOVA test shows that the interaction between Subject type and Level is significant ($F[4,110]=5.58$, $p<.0004$), and Tukey tests (at a tabled value of 4.47), that the preference for referential subjects is significant at levels 2 and 3. The Tukey test also shows that the mean for sentences with expletive subjects at Level 2 is significantly lower than at Levels 3, near-native and native speakers. This indicates subjects at levels 2 and 3 reject sentences with expletive subjects in comparison to sentences with referential subjects. Thus, if we assume that the judgements of subjects at level 1 are indeterminate, when judgements become determinate at level 2, the preference for sentences with referential subjects is strong. A strong initial preference for referential subjects is as predicted. This preference decreases with advancing proficiency so that the near-native speakers do not show a significant preference for one type of subject or other. Does the early preference for a referential subject over an expletive subject apply equally to sentences with thematic verbs and raising verbs?

A further comparison of figures 7.4a and 7.4b shows that although with both verbs sentences with referential subjects are preferred to sentences with expletive subjects, the preference for sentences with referential subjects is higher with thematic verbs than with raising verbs. In order to examine the difference between the verbs closely, we plotted the preference for sentences with referential subjects over sentences with expletive subjects for each of the verb types. This difference between the verbs can be seen graphically in figure 7.5:

Table 7. 5: Mean preference for sentences with referential subjects over sentences with expletive subjects in sentences with thematic(main) and raising verbs.

	Thematic (main) verb	Raising verb
level 1	0.88	0.42
level 2	1.3106	0.856
level 3	1.1619	0.6002
Nn	0.6296	0.3963
Ns	0.5029	0.2045

Figure 7.5: Mean preference for sentences with referential subjects over sentences with expletive subjects in sentences with thematic and raising verbs.

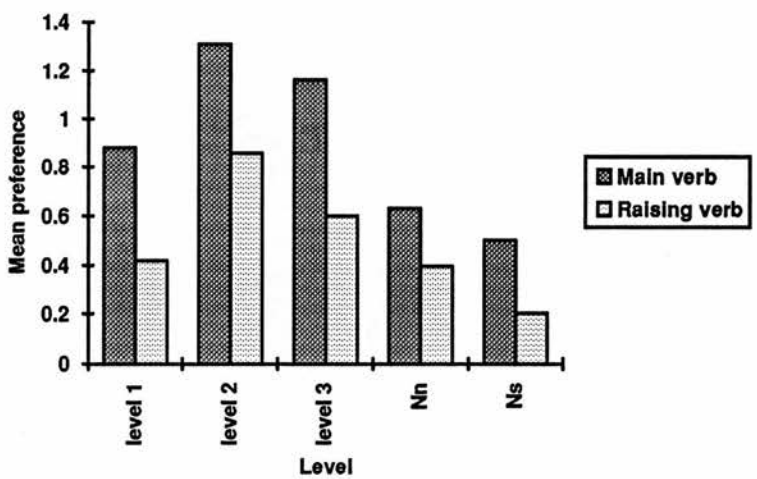


Figure 7.5 illustrates the strength of preference for referential subjects over expletive subjects in sentences with thematic and raising verbs. At all levels, the preference for the referential subject is stronger with thematic verbs than with raising verb.

The ANOVA test confirms the difference between the verbs; the interaction between Subject type x Verb type is significant ($F[1,110]=12.99$ $p<.0005$)(table 3-1, appendix B.1.1). Tukey tests show (tabled value 3.63) that the strength of preference for referential subjects over expletive subjects is significant in sentences with thematic verbs but not in sentences with raising verbs. This confirms that subjects at all levels discriminate significantly between referential subjects and expletive subjects in sentences with thematic verbs but not in sentences with raising verbs. Figure 7.5 also

shows that subjects at levels 1, 2 & 3 are more likely to make this distinction than subjects at near-native and native levels. This too is confirmed, for in the parallel ANOVA test carried out with only native and near-native speakers there is no interaction between Subject type x Verb type (table 3-1, appendix B.3.1). Thus the distinction made between the verbs in the preference for the referential subject by near-native and native speakers is not significant. Therefore, we can say that at lower levels of proficiency the strength of preference for referential subjects is significantly higher in sentences with thematic verbs than in sentences with raising verbs. The strong preference for referential subjects in sentences with thematic verbs decreases with proficiency with near-native and native speaker subjects not making a significant distinction between referential and expletive subjects with either thematic or raising verbs.

Now we will focus on the acceptability of sentences with overt and null subject NP's. As can be expected, the overall mean for sentences with overt subjects (3.8162) is higher than for sentences with null subjects (3.7925). Attribute type ($F[110,1]=172.88$ $p<.0001$) is significant in the ANOVA, indicating a general preference for the grammatical sentences over the ungrammatical at all proficiency levels. It was predicted that the preference for the sentences with overt subjects over sentences with null subjects would have a developmental dimension. If we look at the preference shown for the sentences with overt subjects over sentences with null subjects in figures 7.4a and b we can see that subjects at levels 1, 2 & 3 discriminate less between sentences with overt and null subjects than subjects at near-native and native speaker levels. The link between an increased preference for sentences with an overt subject and proficiency is statistically confirmed in the interaction between Attribute type x Level ($F[4,110]= 28.07$ $p<.0001$). Tukey tests show (tabled value 4.47) that only subjects at near-native and native levels express a significant preference for sentences with overt subjects over sentences with null subjects. The decisive rejection of all sentences with null subjects indicate determinacy. However, it can also be noted from figure 7.4a that there is a difference between near-native and native speakers in the preference for sentences with overt subjects over sentences with null subjects: the preference expressed by native speakers for sentences with overt subjects is stronger than that expressed by near-native speakers. In the parallel ANOVA test carried out with only near-native and native speakers (see Table 3-1, appendix B.3.1) Attribute type x Level is significant ($F[34,1]=5.21$ $p<.02$) confirming that near-native and native speaker do not react uniformly to the acceptability of sentences with overt and null subjects. Therefore although subjects at near-native level decisively reject sentences

with null subjects, there is also a significant difference in the underlying grammars of near-native and native speakers with regard to sentences with null subjects.

The overall preference for overt referential subject (with both verbs) over null referential subjects (0.4895) is less than the similar relationship between overt and non-overt expletive subjects (0.7333). The difference is significant. The ANOVA test shows an interaction between Subject type x Attribute type ($F[110,1]=12.25$ $p<.0007$) and subsequent Tukey tests indicate (tabled value 3.63) that only the preference for sentences with overt expletive subjects over sentences with null expletives is significant. This, indicates that subjects at all levels are more likely to reject sentences with null expletive subjects than sentences with null referential subjects in comparison to their overt subject counterparts. The next step is to ascertain whether null referential subjects are equally acceptable in sentences with both thematic and raising verbs.

A comparison of the overall strength of preference for sentences with an overt subject over a null subject in the different subject-verb combinations; (a) referential subject with thematic verb (0.2786), (b) referential subject with raising verb (0.6724), (c) expletive subject with thematic verb (0.9648) and (d) expletive subject with raising verb (0.7509) show that the preference for the overt subject sentence is lower in the referential subject - thematic verb combination than in the other three types. This difference between the two verbs and the two subject NPs is statistically significant. The ANOVA indicates an interaction between Subject type x Verb type x Attribute type ($F[110,1]=7.76$ $p<.0063$) and Tukey tests show (tabled value 4.29) that the preference for the overt subject sentence over the null subject is significant in all but the referential subject thematic verb combination. This indicates that across all proficiency levels, null subjects, referential as well as expletive are decisively rejected in sentences with raising verbs while in sentences with thematic verbs only the null expletive subject is decisively rejected. The next step is to look at the developmental pattern.

(a) Does the ability to discriminate between overt and non-overt subjects with both referential and expletive NP's appear simultaneously in the ILG continuum?

(b) Does the preference for overt subjects develop at the same time in the ILG in sentences with both verbs?

(c) We noted above that there is a significant difference in the judgements given by near-native and native speakers to sentences with overt and null subjects. Does the difference apply equally to referential subjects as well as expletive subject NP's?

We will look at the mean preferences for sentences with overt subjects over the null for answers to these questions. Prior to that however, we will consider significant interactions between lexical version and other variables tested in the ANOVA test carried out with all subjects.

The ANOVA test shows that the interaction between a) subject x level x lexical version ($F[110,4] = 4.50$ $P<.002$) and b) subject x attribute x lexical version ($F[110,1]=17.28$ $p<.0001$) is significant. Tukey tests were carried out to determine the effect of lexical version on the results. The Tukey test carried out for (a) (tabled value 5.01) does not show a significant difference between versions for either subject type at any of the levels. That is, for example, the difference in acceptability between versions 1 and 2 for sentences with referential subjects is not significant at level 1 or, level 2 etc.. This indicates that lexical version does not cause an intra-level effect resulting in versions 1 and 2 being judged differently by subjects at the same level of proficiency.

In the Tukey test carried out for (b) (tabled value 4.29) we compared the mean acceptability of versions for grammatical sentences and ungrammatical sentences for each of the subject types. The results show that the difference in acceptability between versions for grammatical sentences with referential subjects or ungrammatical sentences requiring a referential subject is not significant. There is no significant difference in sentences requiring expletive subjects either. However, the results show that the preference for the grammatical sentence with an expletive subject over the ungrammatical is significant in version one but not in version two. It was noted earlier (in section 7.1.2) that subjects who saw version two use the lower end of the scale. Since the level of acceptability of both the grammatical and ungrammatical sentences is lower in version two than in version one, the lack of a significant preference can be attributed to the use of the lower end of the scale by subjects who saw lexical version two.

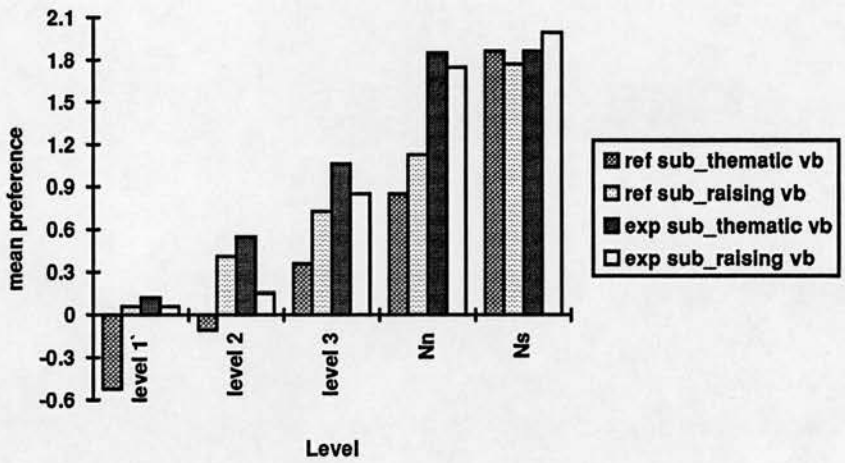
Preferences

In this section we will attempt to answer the questions (a), (b) and (c) raised at the end of the previous section.

Table 7. 6: Mean Preference for sentences with overt subjects over sentences with null subjects:

	Referential subject		Expletive subject	
	thematic verb	raising verb	thematic verb	raising verb
level 1	-0.52	0.06	0.12	0.06
level 2	-0.106	0.409	0.5454	0.1515
level 3	0.3541	0.7291	1.0625	0.8541
Nn	0.8518	1.1296	1.8518	1.7518
Ns	1.8636	1.7727	1.8636	2.0

Figure 7.6 Mean Preference for sentences with overt subjects over sentences with null subjects:



In figure 7.6 we can see the change that takes place in the ILG from level 1 to near-native level in the preference for overt subject sentences over null subject. At level 1 we can see a preference for the sentence with a null referential subject and a thematic verb, a sentence type grammatical in the learners L1. The preference for sentences with overt subjects gradually increases with proficiency. The difference between levels in the preference for the obligatory overt subject is confirmed statistically. Level is significant in the ANOVA test (Table 3-3, appendix B.1.1) carried out on the mean preferences for sentences with overt subjects ($F[110,4]=19.41$ $p<.0001$) and Tukey tests show (tabled value 3.86) that the difference between level 1 and near-native as well as between levels 1 & 2 and native is significant. This confirms that the perception of the obligatory nature of the overt subject changes with proficiency.

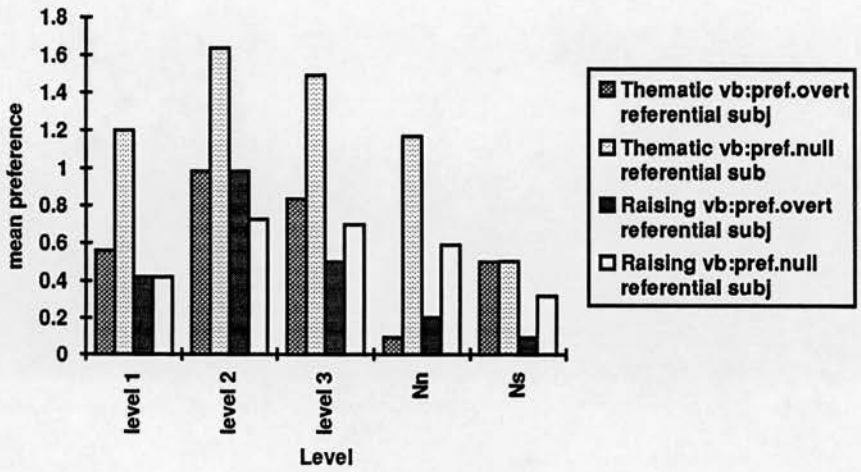
Developmentally, Tukey tests indicate that the preference for the overt subject over the null subject is significant in sentences with a referential subject-raising verb, expletive subject-raising verb and expletive subject-thematic verb at level 3. Thus with both verbs the a null expletive subject is rejected by learners at level 3. These learners also reject a null referential subject in sentences with raising verbs. The null referential subject with a thematic verb, (which is grammatical in Sinhala) is decisively rejected only at near-native level. Therefore the answer to the questions (a) and (b) raised earlier with regard to development in the ILG are (a) that overall, null expletive subjects are recognised as ungrammatical at an earlier stage than null referential subjects and (b) null subject sentences with raising verbs are recognised as being ungrammatical prior to null subject sentences with thematic verbs.

We also raised a third question (viz. question c) pertaining to the nature of the difference between near-native and native grammars. The data showed a difference between near-native speakers and native speakers in the overall rejection of null subjects. Figure 7.6 shows a difference between these two groups in the preference for overt referential subjects over null. However, since near-native speakers and native speakers significantly reject null expletive as well as null referential subjects with both verbs, in order to see where the near-native grammar differs from the native, we decided to compare the mean preference expressed for the referential subject over the expletive subject in both grammatical and ungrammatical sentences, with both verbs. The data is presented in table 7.7 and figure 7.7.

Table 7. 7: Preference for sentences with referential subjects (overt and null) over sentences with expletive subjects (overt and null) with thematic and raising verbs.

	Thematic verb		Raising verb	
	pref. for overt referential subject	pref. for null referential subject	pref. for overt referential subject	pref. for null referential subject
level 1	0.56	1.2	0.42	0.42
level 2	0.9848	1.6363	0.9848	0.7272
level 3	0.8333	1.4906	0.5	0.7005
Nn	0.0925	1.1666	0.19985	0.5925
Ns	0.5	0.5056	0.0909	0.3181

Figure 7.7: Preference for sentences with referential subjects (overt and null) over sentences with expletive subjects (overt and null) with thematic and raising verbs.



We can observe from figure 7.7 differences in the judgements given by near-native and native speakers, in sentences with thematic verbs. Near-native speakers express a strong preference for referential subjects over expletive subjects when the subject is null. A similar preference for referential subjects is not shown in sentences with overt subject NP's. The difference between levels in the strength of preference for null referential NP's (with thematic verbs) is statistically confirmed in the ANOVA test carried out on these preference means (table 3-2, appendix B.1.1). There is an interaction between Verb type x Attribute type x Level ($F(110,4]=7.47$ $p<0.007$). Subsequent Tukey tests show (tabled value 5.01) that at near-native level, the difference in the preference for a referential subject when the subject is null and when the subject is overt is significant. There are no significant intra-level differences in the preferences expressed by native speakers. This indicates that in sentences with thematic verbs, when the subject is null, near-native speakers express a definite preference for a null referential subject over a null expletive subject. They do not make a distinction between subject types when the NP is overt, neither do they make a distinction between referential and expletive subjects in sentences with raising verbs. Therefore, the difference between near-native and native speaker judgements lies in the hierarchy of acceptability. This difference in the relative acceptability of null subjects would account for the significant difference noted earlier between the two groups in the overall acceptability null subjects. Therefore, the answer to the third question raised above would be that near-native speakers are more likely than native speakers to accept sentences with null referential subjects in sentences with thematic verbs. In sentences with raising verbs and in sentences with expletive subjects near-

native judgements are similar to native speakers. To be more precise, in the hierarchy of acceptability in the non-native grammar, null referential subjects in sentences with thematic verbs are less unacceptable than null subjects in any other context. Native speakers by contrast, find all sentences with null subjects equally unacceptable.

Since near-native speakers' judgements are similar to native speakers with regard to expletive subjects, and subjects in sentences with raising verbs, it can be concluded that the underlying grammar with regard to these features approximate that of native speakers. With regard to referential subjects in sentences with thematic verbs the near-native speakers judgements are consistent, but different. Since all sentences with null subjects are rejected consistently we conclude that the mental representation of the Kase feature in the underlying L2 grammar is divergent rather than incomplete at near-native level.

Discussion

We can summarise the findings as follows:

	level 1	level 2	level 3	near-native	native
1. overall pref. for referential subject over expletive subject.	-	+	+	-	-
2. pref. for overt subject over null subject: referential sub-thematic verb	-	-	-	+*	+
3. pref. for overt subject over null: referential sub-raising verb	-	-	+	+	+
4. pref. for overt subject over null: expletive sub-thematic verb	-	-	+	+	+
5. pref. for overt subject over null: expletive sub-raising verb	-	-	+	+	+

* divergent

Subjects at level 1 do not express a significant preference for any of the sentences tested. This is as predicted. We attribute the absence of a preference to indeterminacy due to the absence of AGR at this stage.

Subjects at levels 2 & 3, express a distinct preference for referential subjects over expletive subject. The strength of preference for referential subjects is significantly higher with thematic verbs than with raising verbs. This bears out our predictions that elements which are common to the L1 and the L2, referential subjects and thematic verbs will be recognised prior to elements found only in the L2, expletive subjects and raising verbs. When judgements become determinate at level 2, subjects reject sentences with expletive subjects. This confirms our hypothesis that in early ILG learners do not recognise aspects not activated in their L1, in this case, the requirements of the Kase feature of AGR.

Subjects at level 3 reject null expletive subject sentences with both thematic and raising verbs. They also reject sentences with non-overt referential subjects in sentences with raising verbs. Although null referential subjects are still acceptable, the rejection of null subjects in sentences with raising verbs (indicating the presence of NP movement) and the rejection of null expletive subject NP's, (both of which are syntactic operations alien to the L1 grammar) by subjects at level 3 constitute evidence that the Kase feature is present at this level in the ILG. Therefore, we can conclude that the Kase feature of AGR appears in the ILG by level 3.The results from the previous tests indicated that AGR is present in the ILG at level 2. It is interesting to note from these results that the Kase feature manifests itself at a subsequent stage. Therefore it appears that there is a delay between the time a Functional category is instantiated and the time when values appropriate to the L2 are assigned to its features.

Subjects at near-native level reject all null subject sentences. Up to level 3 null referential subjects in sentences with thematic verbs were not recognised as ungrammatical confirming the prediction that sentences which are grammatical in the L1 but ungrammatical in the L2 will be accepted in early ILG. Further, the fact that the ungrammaticality of null expletives is recognized prior to that of null referential NPs, and the obligatory nature of an overt subject with a raising verb is recognised prior to that with thematic verbs in the IL continuum, bears out our hypotheses that learners will have more difficulty in 'resetting' parameters than 'activating' new parameters. This enables us to reject the null hypotheses that there will be no difference in the development of parameters that need activating and resetting.

Near-native speakers consistently reject null referential and null expletive subjects in sentences with both raising and thematic verbs. However, they also make a distinction

between null referential and null expletive subjects in sentences with thematic verbs. Null referential subjects are judged to be less unacceptable than null expletive subjects. Native speakers do not perceive a hierarchy in the acceptability of the ungrammatical sentences. There is no significant difference in the judgements of near-native and native speakers' in the acceptability of expletive subjects and sentences with raising verbs. The fact that near-native speakers perceive a hierarchy in the acceptability of null subjects in sentences with thematic verbs, indicate that the underlying grammar of near-native speakers is different to that of native speakers. However, since the near-native judgements are determinate and consistent, we conclude that the underlying grammar is divergent rather than incomplete.

The co-existence of overt expletive subjects with null referential subjects at level 3 rules out the possibility that expletive 'it' acts as the trigger for resetting the null subject parameter in the case of Sinhalese learners of English. Although this combination violates the implicational relationship noted by Rizzi (1982) that in natural languages the presence of expletive subjects entails the obligatory status of referential subject pronouns, we argue that expletive subjects in the grammar of Sinhalese learners is not a piece-meal solution as suggested by Zobl (1990). The evidence from NP-movement and expletive subjects preclude the conclusion that the Kase feature is not present. We will argue in our concluding chapter that the underlying grammar of near-native speakers is consistent with the natural grammars permitted within UG and therefore divergent, (i.e., that AGR is not instantiated in the ILG and the overt manifestations are reanalysed and the underlying grammar is incomplete). We will claim that the divergent nature of the L2 grammar is a result of the interaction of L1 parameters with the L2 input.

It is also to be noted that Sinhalese learners of English are moving from a [+pro-drop] grammar to a [-pro-drop] grammar, i.e. from a superset to a subset. If, as suggested by Zoble (1986), the positive evidence required to 'reset' a parameter from a larger to a smaller value is different, it would explain why expletive subjects which trigger a [-pro-drop] value in L1 acquisition fails to 'reset' to a [-pro-drop] in this case. In this instance, since Kase appears in the ILG after the instantiation of AGR, the expletive pronoun seems to be a consequence rather than a cause of the parameter resetting. This would support the position put forward by Phinney (1987).

Thus the evidence suggests that in L2 acquisition positive evidence is sufficient to assign a value to a particular parameter not activated in the L1, except when it

requires recovering from a larger grammar: in this case it takes longer to 'reset', furthermore, the underlying grammar at near-native level is not identical to that of native speakers.

We will now look at the other features of AGR tested.

7.2.2 Number Agreement

AGR in English requires that the verb be coindexed with the NP in Spec-IP, therefore, the verb agrees in number and person with the NP in Spec-IP.

The aspect of subject-verb agreement marking that we will be looking at in this section is [+Number] agreement. In the next, we will look at [+Person] agreement features. Each aspect will be examined in order to see whether values similar to those of English have been assigned to these properties of AGR.

The [+Number] feature of AGR requires the verb to agree in number with the NP in [Spec, IP]. Therefore we will look at subject-verb agreement marking with singular and plural subject NP's in the L2 grammar.

Number agreement in English according Campbell (1991) is overtly marked only on the copula[4]. Thus the only overt (inductive) evidence the learner has available to her to indicate that the L2 requires number agreement would be from the copula. Hence, the test sentences contain the *be* verb. Following Radford (1990) and the tradition of acquisition literature, we will assume that the overt presence of a particular inflection in the grammar (in this case, the *appropriate recognition* of the inflection) is a reflection of the related functional category (and the particular property) in the underlying grammar.

[4] (see chapter 4 section 4.7.1.for a detailed discussion)

Sentence types tested	Examples
a) [+] subject-verb agreement, singular subject:	Using photocopy machines is easy.
b) [-] subject-verb agreement, singular subject:	Using photocopy machines are easy.
c) [+] subject-verb agreement, plural subject:	The green pen and the red file are mine.
d) [-] subject-verb agreement, plural subject:	The green pen and the red file is mine.

Recall that it was predicted that

1) AGR will not be present in early ILG, hence features of AGR will not be recognised, in this case subject-verb agreement [+Number].

2) Subjects at the stage in which the [+Number] feature is assigned values will reject sentences without subject-verb agreement marking.

3) If the values assigned to the [+Number] feature are similar to those of English, the near-native judgements will coincide with native speakers. If the values assigned to features in the second language grammar are different, the near-native judgements will be different to those given by native speakers.

To test these hypotheses, the following statistical analyses were carried out:

(a) A two-way analyses of variance, with repeated measures for (Number (singular/plural) x Attribute type (+/- subject-verb agreement), with proficiency level and lexical version as grouping factors. (Table 4-1, appendix B.1.1).

(b) Post-hoc Tukey test on pairs of means where the ANOVA test proved significant.

Results

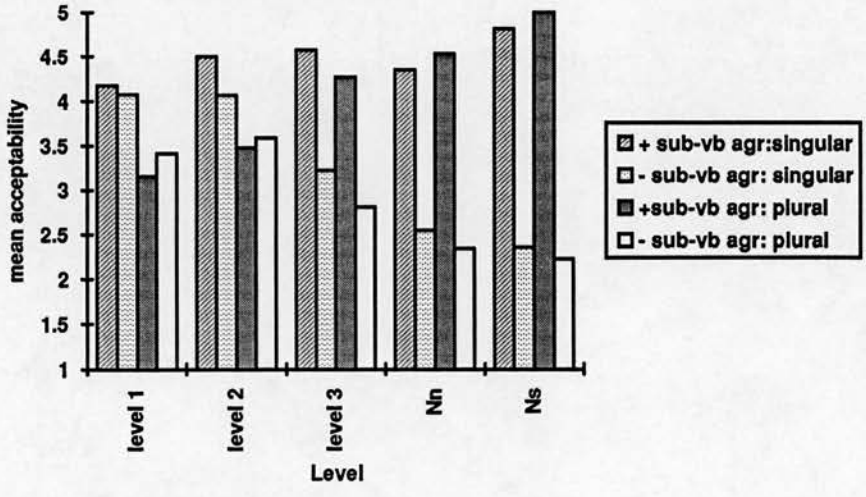
The results obtained from sentences with and without number agreement marking are presented in table 7.8 and figure 7.8.

Table 7. 8: Mean acceptability for sentences with and without subject-verb agreement marking with singular and plural subjects:

	Singular subject		Plural subject	
	[+] sub-vb agreement	[-] sub-vb agreement	[+] sub-vb agreement	[-] sub-vb agreement
level 1	4.18	4.08	3.16	3.42
level 2	4.5	4.0757	3.4848	3.5909
level 3	4.5833	3.2292	4.2708	2.8125
Nn	4.3518	2.5556	4.5371	2.3518
Ns	4.8182	2.3636	5.0	2.2273

Figure 7.8 is a graphical representation of the data in the table.

Figure 7.8: Mean acceptability of sentences with and without subject-verb agreement with singular and plural subjects.



Several characteristics can be observed from the data.

First, subjects at different levels do not give uniform judgements. There is a difference in the pattern of judgements given by subjects at lower levels of proficiency and subjects at higher levels of proficiency. The ANOVA test confirms that Level ($F[110,4]=2.55$ $p<.0.04$), is a determining factor in the pattern of judgements. Tukey

tests show (tabled value 3.86) that the difference between near-natives, native speakers and level 1 is significant, signaling a change in the perception of subject-verb agreement marking in the second language grammars.

Second, it can be noticed from figure 7.8 that subjects at levels 1 and 2 prefer sentences with a singular subject (both grammatical and ungrammatical) over those with a plural subject, while subjects at near-native and native speaker levels do not differentiate between the singular and the plural. The ANOVA test indicates that the overall difference in acceptability between sentences with a singular subject and sentences with a plural subject is significant in the main effect for Number ($F[110,1]=17.29$ $p<.0001$). The link between the preference for sentences in the singular and proficiency is statistically confirmed in the interaction between Number x Level ($F[110,4]=4.06$ $p<.004$). Tukey tests show (tabled value 4.47) that the preference for sentences with singular subjects over sentences with plural subjects is significant at level 1 but not at any other level. This indicates that at level 1, sentences with plural subjects are rejected in comparison to sentences with singular subjects but this preference decreases with increasing knowledge of English.

(It is of interest to note from figure 7.8 that subjects at levels 1 and 2 favour the sentences with the default inflection 'is' over their counterparts; the grammatical sentence in the case of the singular and the ungrammatical in the case of the plural.)

Figure 7.8 also shows that subjects at all levels make some distinction between sentences with subject-verb agreement and without subject-verb agreement. The ANOVA test shows a main effect for Attribute type ($F[110,1]=166.21$ $p<.0001$) which confirms this. Since the grammatical sentence has a higher mean acceptability than the ungrammatical, this indicates an overall preference for the grammatical sentence. Figure 7.8 also shows that the preference for the grammatical sentences increase with proficiency. This too is statistically confirmed in the significant interaction between Attribute type x Level ($F[110,4]=29.77$ $p<.0001$) and Tukey tests show (tabled value 4.47) that the preference for the sentences with subject-verb agreement marking over the sentences without, is significant from level 3 onwards. As predicted therefore subjects at lower levels (levels 1 and 2) do not discriminate between sentences with and without subject-verb agreement marking. The ability to decisively reject sentences without subject-verb agreement at level 3 can be taken as an indication of the appearance of the [+Number] agreement feature in the L2 grammar at this stage. Further, Tukey tests show that sentences without subject-verb

agreement marking with both singular and plural subject NP's are rejected at level 3. This indicates that verbal inflections concording with singular and plural subjects appear simultaneously in the IL continuum.

Finally, figure 7.8 shows that there is a similarity between near-native and native speaker judgements with regard to both singular and plural marking. In the ANOVA tests carried out with only the native and near-native speakers (table 4-1, appendix B.3.1) there is a main effect only for Attribute type, confirming that near-natives and native speakers react uniformly to the variables tested.

Discussion

Subjects at levels 1 and 2 do not express a significant preference for sentences with or without subject-verb agreement marking. We interpret this as an indication of indeterminacy which bears out the prediction that number agreement is not present in early ILG. This is as predicted.

The ability to decisively reject sentences without number agreement appears at level 3. Therefore, the data indicates that both Kase and [+Number] are assigned values at the same time in the ILG, i.e., at level 3. This further confirms that there is a delay between the instantiation of a functional category (which appeared at level 2) and the assignment of values appropriate to its properties.

The low acceptability of the plural marker and the favouring of the default form 'is' at levels 1 and 2 would suggest, that with these learners too (as noted in other L2 acquisition studies), some overt manifestations of AGR are present in early ILG. However, the preference for 'is' in grammatical as well as ungrammatical contexts suggests that it is not yet analysed as the singular marker.

The data shows that the underlying mental representation of the number feature of AGR at near-native level approximates that of native speakers. The [+Number] feature does not require a resetting of L1 parameters and there is sufficient salient positive evidence in the L2 grammar to enable the assignment of appropriate values to the number feature.

In the next section we look at data obtained from [+Person] agreement marking.

7.2.3 Person Agreement

In this section we focus on the judgements given to sentences designed to test the [+Person] feature of AGR. This will enable us to see whether the [+Person] agreement feature is present in the ILG and whether the values assigned to it are similar to those of native English.

We obtained judgements on sentences marked for [+/-] subject-verb agreement on thematic, copula and auxiliary verbs. The [+Person] feature of AGR requires the verb to agree with the subject NP with regard to 1st, 2nd or 3rd person. However, since thematic verbs in English overtly mark for [+Person] agreement only with a 3rd person singular subject, to make comparison possible, it was necessary that the subject NP in the test sentences with copula and auxiliary verbs too be in the third person singular.

Sentence types tested	Example sentences
a) [+] subject verb agreement, copula verb:	The newspapers said that the man who died in the accident was a famous poet.
b) [-] subject verb agreement, copula verb:	The newspapers said that the man who died in the accident were a famous poet.
c) [+] subject verb agreement, auxiliary verb:	Sarath thinks that Leela has gone home.
d) [-] subject verb agreement, auxiliary verb:	Sarath thinks that Leela have gone home.
e) [+] subject verb agreement, thematic verb:	Champa's brother usually comes home on Saturdays
f) [-] subject verb agreement, thematic verb	Champa's brother usually come home on Saturdays

As set out earlier, it was hypothesised that

1) AGR would not be present in early ILG, hence features of AGR will not be recognised, in this case subject-verb agreement [+Person].

2) At the stage the [+Person] feature is assigned values, subjects will reject sentences without subject-verb agreement marking.

3) If the values assigned to the [+Person] feature are similar to those of English, the near-native judgements will coincide with native speakers. If the features are different, the judgements will be different from those given by native speakers.

To test these hypotheses, the following statistical analyses were carried out:

(a) A two-way ANOVA with repeated measures (Verb type x Attribute type [+/- subject-verb agreement]) and with proficiency level and lexical version as grouping factors. (Table 5-1, appendix B.1.1).

(b) A two-way ANOVA on the *mean preference* for sentences with *one verb type over the other* with repeated measures for Preference x Attribute type. (Table 5-2, appendix B.1.1).

(c) A two way ANOVA on the *mean preference* for sentences with *subject-verb agreement marking over sentences without subject-verb agreement marking* with repeated measures for Verb type. (Table 5-2, appendix B.1.1).

(d) A post-hoc Tukey test was carried out on pairs of means where the ANOVA test proved significant.

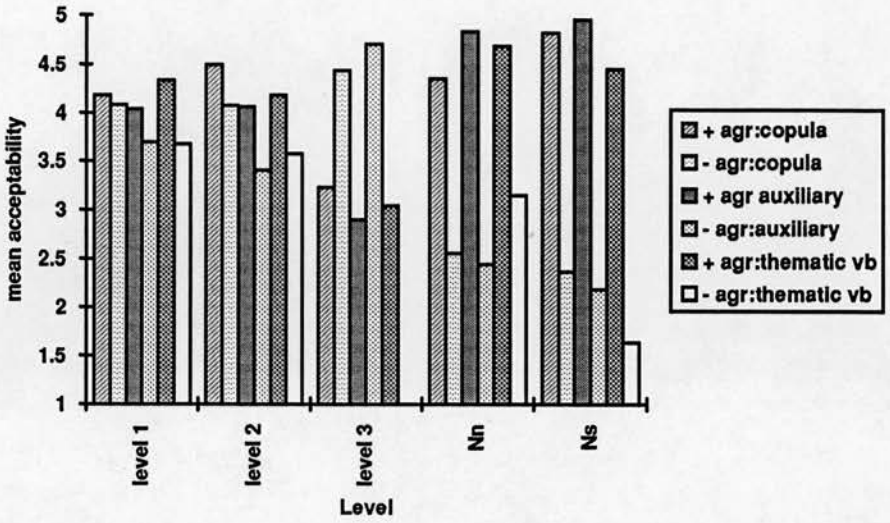
Results

The results obtained on [+Person] agreement marking are shown in tables 7.9, 7.10 and 7.11 and the corresponding figures 7.9, 7.10 and 7.11.

Table 7. 9: Mean preference for the presence or absence of subject-verb agreement with copula, auxiliary and thematic verbs.

	Copula verb		Auxiliary verb		Thematic verb	
	[+]sub-vb agreement	[-]sub-vb agreement	[+]sub-vb agreement	[-]sub-vb agreement	[+]sub-vb agreement	[-]sub-vb agreement
level 1	4.2688	4.08	4.04	3.7	4.34	3.68
level 2	4.5	4.0757	4.0606	3.409	4.1818	3.5757
level 3	4.5833	3.2291	4.4375	2.8958	4.7083	3.0416
Nn	4.3518	2.5555	4.8333	2.4444	4.6851	3.1481
Ns	4.8181	2.3636	4.9545	2.1818	4.4545	1.6363

Figure 7.9 : Mean acceptability of sentences with and without overt subject-verb agreement marking [+Person] on copula, auxiliary and thematic verbs.



It can be observed from figure 7.9 that subjects at different proficiency levels react differently to the sentences tested. Statistically this is confirmed, for the ANOVA test shows a main effect for Level ($F[110,4]=4.14$ $p<.003$). The overall acceptability of sentences decrease from level 1 (4.01081) to native level (3.4015) which indicates that the perception of the acceptability of sentences changes with increasing knowledge of English. As we shall see, the change in the overall acceptability of sentences with proficiency can be attributed to a decrease in the acceptability of ungrammatical sentences.

Figure 7.9 also shows that the three verbs are not perceived similarly by subjects at different levels of proficiency. Subjects at levels 1 and 2 prefer sentences with copula verbs, both grammatical and ungrammatical, to sentences with auxiliary or thematic verbs. The interaction between Verb type x Level ($F[220,8]=3.12$ $p<.002$) is significant in the ANOVA test, confirming the difference between the verbs across the levels. Tukey tests show (tabled value 4.80) that the preferences shown for sentences with copula verbs over the auxiliary verbs is significant at level 2. This preference decreases with proficiency. If we interpret the lack of preference for any sentence type at level 1 as an indication of indeterminacy, when judgements become determinate at level 2, subjects express a decisive preference for sentences with the copula over the auxiliary. A further difference in the acceptability of sentences with different verbs can be seen on examination of the judgements given by near-native and native speakers. Overall, near-native speakers show an average preference for sentences with thematic

verbs (3.9166) that is higher than that shown by near-native speakers (3.0454). There is no difference between the two groups in the preference for sentences with copula and auxiliary verbs. The difference between the verbs in the judgements of these two groups is confirmed in the parallel ANOVA test carried out with only near-native and native speakers (table 5-1, appendix B.3.1) where the interaction between Verb type x Level ($F[68,2]=9.86$ $p<.0002$) is significant. Post-hoc Tukey tests show (tabled value 4.16) that the difference in acceptability between near-native and native speakers for sentences with thematic verbs is significant. Therefore, at lower levels of proficiency Sinhalese learners of English significantly prefer sentences with the copula verb to sentences with auxiliary verbs. Although with increasing proficiency non-native subjects discriminate less between the three verbs, the near-native preference for sentences with thematic verbs is stronger than that of native speakers.

We suggested earlier that the decrease in the overall acceptability of sentences from level 1 to native, was due to the decrease in acceptability of sentences without [+Person] agreement marking. Figure 7.9 shows that all subjects make some discrimination between grammatical and ungrammatical sentences, but it also shows that subjects from level 3 onwards express a greater preference for the grammatical sentences than subjects at levels 1 and 2. The ANOVA test (table 5-1, appendix B.1.1) confirms both the overall preference for the grammatical sentences in the main effect for Attribute type ($F[110,1]=229.51$ $p<.0001$) and the link with proficiency in the interaction between Attribute type x Level ($F[110,4]=19.61$ $p<.0001$). Subsequent Tukey tests show (tabled value 4.47) that from level 3 onwards the preference for the sentences with [+Person] agreement over sentences without subject-verb agreement is significant. Thus, while subjects at levels 1 and 2 do not decisively reject sentences without subject-verb agreement marking, subjects from level 3 onwards do indicating that the [+Person] feature is present in the grammar at this stage. Further, as the ANOVA test shows there is no interaction between Verb x Attribute x Level indicating that [+Person] agreement marking develops simultaneously with the copula, auxiliary and the thematic verb in the ILG. This is further confirmed in the Tukey test for it shows that at level 3, subjects reject sentences without [+Person] agreement marking on all three verbs. (This development of [+Person] agreement marking on copula, auxiliary and thematic verbs in the ILG can be observed clearly in 7.10 below).

Preferences

It was noted that the near-native preference for sentences with thematic verbs was different to that of native speakers. In order to determine whether the difference was due to the [+Person] feature being represented differently in the near-native grammar, we carried out an ANOVA test on the mean preference for sentences with subject-verb agreement marking over sentences without agreement marking (Table 5-3, appendix B.1.1).

Table 7. 10: Mean preference for sentences with [+Person] agreement over sentences without subject-verb agreement marking on copula, auxiliary and thematic verbs.

	copula verb	auxiliary verb	thematic verb
level 1	0.1888	0.34	0.66
level 2	0.4242	0.6515	0.6060
level 3	1.3541	1.5416	1.6666
Nn	1.7963	2.3888	1.5370
Ns	2.4545	2.7727	2.8181

Figure 7.10 is a graphical representation of the data in table 7.10

Figure 7.10: Mean preference for sentences with [+Person] agreement with copula, auxiliary and thematic verbs.

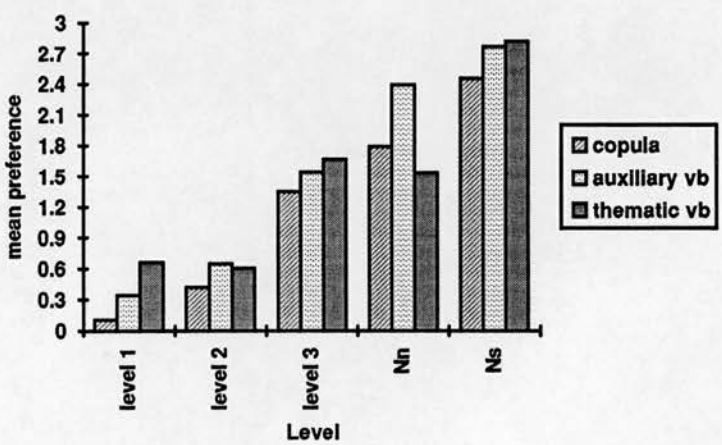


Figure 7.10 shows that with all three verb types the preference shown by native speakers for sentences with subject-verb agreement marking is stronger than the preference expressed by near-native speakers. The parallel ANOVA test carried out

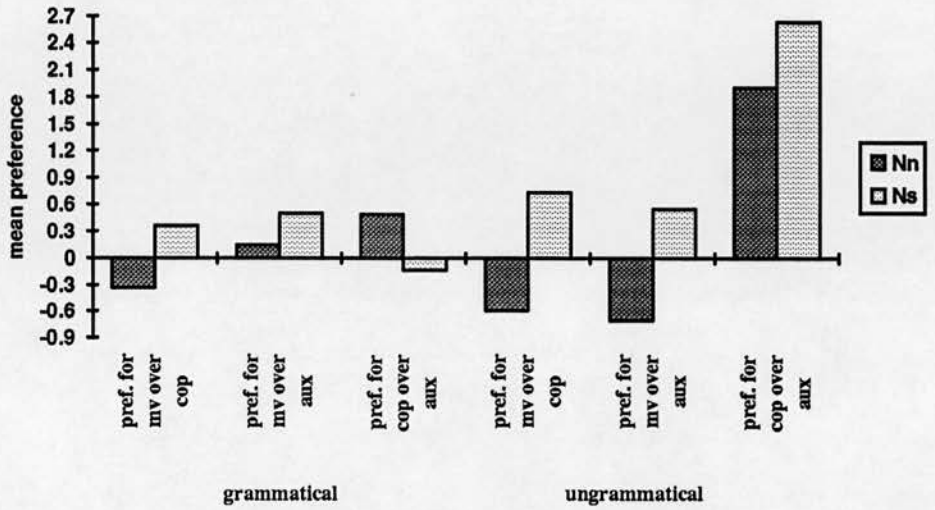
with only native and near-native speakers (table 5-1, appendix B.3.1) statistically confirms the difference between the two levels in the interaction between Attribute type x Level ($F[34,1]=5.01 p<.03$). Tukey tests show (tabled value 3.74) that both groups significantly reject sentences without subject-verb agreement marking but it also shows a significant difference between the two groups in the overall *strength of preference* for sentences with subject-verb agreement marking. This indicates that native speakers reject sentences without [+Person] agreement marking more decisively than the near-natives. Recall, we also noted a significant difference between near-native and native speakers in the overall acceptability of sentences with thematic verbs. In order to find out whether there is a link between the overall preference for sentences with thematic verbs and the difference with regard to overt subject-verb agreement marking, i.e., whether the differences in native and near-native judgements on subject-verb agreement marking apply to all three verb types equally, an ANOVA test was carried out on mean preferences for each verb over the other two verbs[5] with both grammatical and ungrammatical sentences (table 5-2, appendix B.1.1). The results are as follows:

Table 7. 11: Mean preference for sentences with one verb type over another: preference for thematic (main) verb over copula, thematic over auxiliary and copula over auxiliary in grammatical and ungrammatical sentences.

	[+] subject-verb agreement			[-] subject-verb agreement		
	pref. for thematic over cop	pref. for thematic over aux	pref. for cop over aux	pref. for thematic over cop	pref. for thematic over aux	pref. for cop over aux
level 1	0.0712	0.3	-0.2288	-0.4	-0.02	-0.5688
level 2	-0.3182	0.1212	-0.4394	-0.5	0.1666	-1.0909
level 3	0.125	0.2708	-0.1458	-0.1875	0.1458	-1.6875
Nn	0.3333	-0.1484	-0.4815	0.5926	0.7037	-1.9074
Ns	-0.3636	-0.5	0.1364	-0.7273	-0.5455	-2.6364

[5] The means were obtained by subtracting the mean acceptability rating for grammatical sentences with copula and auxiliary verbs from the mean acceptability for grammatical sentences with thematic verbs, and by subtracting the mean preferences for grammatical sentences with the copula verb over the auxiliary verb. Similar means were obtained for the ungrammatical sentences.

Figure 7.11: mean preference for sentences with one verb type over another: preference for thematic (main) verb over copula, thematic over auxiliary and copula over auxiliary in grammatical and ungrammatical sentences in the judgements of near-native and native speakers.



From figure 7.11 we can see that near-native speakers prefer the ungrammatical sentences with the thematic verb to the ungrammatical sentences with either the copula or the auxiliary verb. Native speakers on the other hand find the ungrammatical sentence with the thematic verb less acceptable than the ungrammatical sentences with copula and auxiliary verbs. Statistically, in the ANOVA test carried out on the mean preferences for one verb type over another, there is a significant interaction between Preference x Attribute x Level ($F[230,8]=4.35$ $p<.0001$) (table 5-2, appendix B.1.1). Tukey tests show that (tabled value 4.81) the difference between near-native and native speakers in the preference for the agr-less sentence with thematic verbs over the agr-less sentence with copula verbs is significant. This indicates that in the hierarchy of acceptability near-native speakers find sentences without [+Person] agreement marking on thematic verbs less unacceptable than sentences without [+Person] agreement marking on the copula. Native speakers express an inverse preference. In other words, there is a difference between the two groups in the hierarchy of unacceptability of sentences without [+Person] agreement marking on thematic and copula verbs.

Discussion

The lack of a clear preference for sentences with [+Person] agreement at levels 1 and 2 indicates indeterminacy which can be attributed to the absence of the [+Person] agreement feature in the ILG at these levels. This is as predicted. The evidence also indicates that, at lower levels of proficiency, sentences with copula verbs (both grammatical and ungrammatical) are preferred to sentences with auxiliary and thematic verbs.

The decisive rejection of sentences without subject-verb agreement marking by subjects at level 3, indicates that the [+Person] agreement feature is present at this stage of development in the ILG. The data also indicates that the agreement inflection appears on all three verbs at the same time in the ILG continuum[6] i.e. level 3. Thus, in the restructuring of the underlying grammar, as with Kase and [+Number] agreement, [+Person] agreement too appears at level 3. Since AGR is instantiated by level 2, this suggests that overt morphological manifestations of the features of AGR are analysed between levels 2 and 3 and they appear in the L2 grammar at level 3.

Contrary to the proposals by Clahsen and Penke (1992) and Eubank (1992), the evidence in the present study suggests that overt verbal inflections is not the 'trigger' for AGR in L2 grammar since V-movement to AGR take place prior to the appearance of verbal inflections. However, the overt inflectional morphology may be the key to the properties of AGR.

Although the data indicates that the [+Person] agreement feature is present in the underlying grammar at near-native level, the near-native knowledge representations are different from those of native speakers. In the near-native grammar, the absence of person agreement marking on thematic verbs is less unacceptable than the lack of person agreement marking on copula verbs. Native speakers on the other hand, find the absence of person agreement marking on thematic verbs less acceptable than lack of agreement marking on copula verbs. However, since the judgements at near-native level are determinate and consistent (i.e., the absence of person agreement marking is rejected with all three verbs tested,) we argue that the underlying mental

[6] According to the morpheme acquisition studies (Bailey, Madden and Krashen 1974, Krashen 1977) agreement marking on thematic verbs is the last to be acquired in the IL continuum. The evidence from Sinhalese learners of English does not disprove this for although agreement marking appears on all three verbs at the same time, the judgements on the 3ps.sg -s are less determinate than the judgements on the other two verbs.

representation is divergent[+UG] rather than incomplete. There is no agreement marking in the learners' L1, therefore its presence cannot be attributed to transfer.

In English, salient positive evidence is available for [+Person] agreement marking with the copula and auxiliary, but not with the thematic verb. Therefore, it is possible that the difference in the near-native grammar between thematic verbs and the other two verbs is due to the absence of positive evidence in the one and the availability of it with the other. It appears therefore, that unlike in L1 acquisition, where overt positive evidence for one instance is sufficient to set the appropriate value to a given parameter, in L2 acquisition salient positive evidence is required for every instance in order to approximate the value of the TL grammar.

7.3 Conclusion

We predicted that AGR will be instantiated in the L2 grammar. The evidence from verb movement, obligatory subjects and overt morphological manifestations of AGR confirms this prediction. We hypothesised that at the stage AGR appears in the ILG, sentences without AGR will be rejected decisively. The data indicates that subjects at level 2 reject sentences without verb movement to AGR, which led to the conclusion that AGR is activated in the ILG grammar at level 2.

The data also reveals that subjects at level 3 reject sentences without the Kase, [+Number] and [+Person] features of AGR. From this we concluded that values to the properties of AGR are assigned by level 3. We hypothesised that if the underlying L2 grammar is divergent from that of the native grammar with regard to any property of AGR, the near-native judgements with regard to that aspect will be different but determinate and, that if the underlying near-native grammar is incomplete, the judgements will be indeterminate and inconsistent. The evidence shows that the underlying grammar at near-native level is similar to that of native speakers with regard to some aspects, but divergent with regard to others.

The development and the nature of the underlying grammar at near-native level with regard to AGR and its properties can be summarised as follows:

	level 1	level 2	level 3	near-native	native
1. Verb movement to AGR over ADV	-	+	+	+	+
2. Verb movement to AGR in complement sentences	-	+	+	+	+
3. Pref. for sentences referential subject over sentences with expletive subject.	-	+	+	-	-
4. Obligatory referential subject with thematic verb	-	-	-	+*	+
5. Obligatory referential subject with raising verb	-	-	+	+	+
6. Obligatory expletive subject with thematic verb	-	-	+	+	+
7. Obligatory expletive subject with raising verb	-	-	+	+	+
8. Number agreement, singular subject	-	-	+	+	+
9. Number agreement, plural subject	-	-	+	+	+
10. Person agreement, copula verb	-	-	+	+	+
11. Person agreement, auxiliary verb	-	-	+	+	+
12. Person agreement, thematic verb	-	-	+	+*	+

(* divergent)

From this we can observe the stages in the development of AGR in the L2.

At level 1 there is no verb movement to AGR. There is indeterminacy with regard to sentences with expletive subjects and sentences with raising verbs. Learners also do not express a preference for sentences with overt subjects over sentences with null subjects. There is also indeterminacy with regard to the [+Number] and [+Person]

agreement features of AGR. All of this points to the absence of AGR in the underlying grammar at this stage. The lack of verb movement indicates that there is no AGR projection and the lack of expletive subjects and NP movement suggests that an NP is not obligatory in [Spec, INFL] at this stage in the ILG, hence there is no element whose Kase features has to be saturated. The lack of subject-verb co-indexation further confirm the absence of AGR or its properties at level 1.

At level 2, there is verb movement to AGR. There is no preference for sentences with overt subjects over null subjects and learners reject sentences requiring expletive subjects in comparison to sentences requiring referential subjects. There is also indeterminacy with regard to NP movement in sentences with raising verbs and indeterminacy on subject-verb agreement. The V-movement suggests that an unspecified FP which is higher than TNS is present in the underlying grammar at this stage. We interpret this to be an under-specified AGR. The rejection of expletive subjects and the non-rejection of sentences with null subjects indicate that the AGR thus projected does not discharge Kase on [Spec, INFL]. The lack of determinacy with regard to [+Person] and [+Number] features also indicates that values to the properties of AGR are not assigned at this stage. The data also shows a partiality for the default form of the copula verb 'is' (complement sentences figure 7.2 and number agreement marking, figure 7.8) in grammatical as well as ungrammatical contexts at levels 1 and 2. Following Eubank (1992), this can be taken as an indication that the affix has not yet been stripped from the verb and therefore it is base generated together with the verb. The non-analysis of the affixes accords with an under-specified AGR.

Level 3 is the stage where sentences with null subjects are rejected in comparison to sentences with overt subjects (other than null referential subjects in sentences with thematic verbs). The rejection of sentences without expletive subjects and without NP movement denotes an AGR that assigns structural Case to [Spec, INFL]. Subjects at this stage also reject sentences without subject-verb agreement marking. The presence of both number and person agreement marking indicates subject-verb co-indexation. The evidence therefore suggests that the properties of AGR are assigned values at this level in the ILG.

At near-native level all sentences with null subjects are rejected. Thus, in the L2 grammar at near-native level an overt NP is obligatory in [Spec, INFL] to saturate the Kase feature of AGR. Therefore, when the verb does not assign an external theta

role and [Spec-VP] is empty at d-structure, either an expletive NP must occupy [Spec, INFL] or the internal argument must move to [Spec, INFL]. The data thus indicates that a fully specified AGR is present in the underlying grammar at near-native level.

From this sequence we can identify three stages in the development of AGR in the ILG. An initial stage where there is no AGR in the ILG (corresponding to level 1), a second stage where there is a under-specified AGR where the affix has not yet been separated from the verb, and a third stage with a fully specified AgrP. At this stage the STEM+AFFIX is analysed and the morphemes concord with the subject. Further, AGR also assigns Kase to its specifier.

The following observations can be made about the representation of AGR in the underlying grammar at ultimate attainment. The higher acceptability of null referential subjects in sentences with thematic verbs by near-native speakers suggests that the values to Kase in the L2 does not coincide with that of native speakers of English. The data indicates that the underlying knowledge representation of near-native speakers with regard to the [+Number] feature coincides with that of native speakers but the underlying grammar with regard to [+Person] agreement marking on thematic verbs does not. Thus, at near-native level all the properties of AGR have been assigned values, some identical to the target language and others different to the target language.

In the concluding section we shall argue that learners arrive at a value different from that of the target language with regard to pro-drop as a result of the interaction between misleading input and the use of L1 parameters. As to the differences in the knowledge representation between the [+Number] and the [+Person] features, the [+Number] feature does not require a 'resetting' of L1 parameters and there is sufficient salient positive evidence in the L2 grammar to enable the assignment of values appropriate to English. Although the setting of the [+Person] agreement value in the L2 does not involve a recovery from an L1 setting, the PLD available in English with thematic verbs is not salient. The lack of salient positive evidence for [+Person] agreement marking on thematic verbs could be one of the reasons for the divergence in the underlying grammar. In the next chapter where we examine the properties of TNS we look at the judgements given to the misanalyis of the 3ps.sg *-s* as a TNS marker instead of an AGR marker. These results may give us further insight to the reasons for divergence in subject-verb agreement with thematic verbs.

We suggest that the delay between the instantiation of AGR at level 2 and the appearance of its overt manifestations at level 3 is due to a delay in 'lexical learning'. The evidence does not support either the claim that expletive 'it' is the trigger for AGR or that overt verbal inflections act as the trigger for AGR in L2 acquisition. However, on the basis of the data we suggest that these features are the key to the assignment of values to the properties of AGR. In other words, it is by analysing the overt morphological manifestations that values appropriate to the properties of the TL can be assigned.

The evidence also shows us that all the features of AGR tested - Kase, [+Number] and [+Person] are manifested at the same stage in the ILG. This indicates that the consequences of AGR are computed at the same time in the ILG. We suggest therefore that the features of AGR are not learned in isolation from one another, as they would if learners were using only inductive learning mechanisms.

To conclude, the data from these tests suggest that L2 learners are able to activate functional categories in the second language grammar and that the development takes place in three stages. The data also shows that the knowledge representations at ultimate attainment with regard to the features of AGR are similar to those of the target language a) when L2 learners have positive evidence available in the input and b) when they do not have to recover from L1 parameters.

In the next chapter we will look at judgements obtained with regard to TNS: a) resetting values to non-past tense, b) resetting the values of the [-TNS] marker and c) acquiring the values for [+/- Past] tense.

Chapter Eight

RESULTS 3 - TNS IN THE L2 GRAMMAR

8.0 Introduction

In this chapter we will look at aspects of the TNS parameter that need 'resetting' in the L2 grammar and aspects of TNS that are common to the L1 and the L2. In the previous chapter the evidence indicated that L2 learners 'reset' the TNS parameter with regard to the projection of TNS in complement sentences. The aspects of TNS that will be focused on here are:

a) The resetting of the morphological uniformity parameter,

b) The resetting of the m-selection properties of [-TNS] , and

c) Past tense marking.

Recall it was predicted that

1) In early ILG learners will transfer TNS and the properties assigned to it from the L1 to the L2. Therefore learners at lower proficiency levels,

> i. misanalyse the L2 input in accordance with the L1 parameters. In this case, they misanalyse that English, like Sinhala, marks the non-past tense overtly. If this pattern of judgement persists at near-native level, it would support the null hypothesis that L2 learners do not 'reset' L1 parameters but provide alternate analyses for overt manifestations in the L2 grammar.
>
> ii. elements which are common to the L1 and the L2 will be recognized prior to those found only in the L2. Therefore, the [+TNS] marker will be recognised prior to the [-TNS] marker and both regular and irregular past tense marking will be recognized at lower levels of proficiency.
>
> iii. Sentences which are grammatical according to the L1 parameter setting, though ungrammatical in the L2, would be found acceptable in early ILG.

2) It was also predicted that L2 learners will 'reset' the properties of TNS .

i. At the stage in which the 3ps.sg *-s* is analysed as an agreement marker, subjects will reject sentences which overgeneralize *-s* as the non-past tense marker.

ii. At the stage the underlying grammar resets the m-selectional properties of [-TNS] subjects will reject non finite sentences without the [-TNS] marker to.

3) If the near-native grammar is divergent from that of the native with regard to any property of TNS, judgements will be different from that of native speakers. As discussed in chapter 3, since TNS is already activated in the L1, the underlying near-native grammar with regard to the properties of TNS can be 'divergent [-UG]', if L1 parameter values are retained or 'divergent [+UG]', if L1 values are changed.

4) It was also predicted that learners will have more difficulty in 'resetting' than in 'activating' parameters. Therefore the assignment of values appropriate to TNS in English will not precede the appearance of AGR and its properties in the IL continuum.

8.1 The Morphological Uniformity Parameter

First, we will look at data elicited to discover whether the underlying grammar of the L2 has a morphologically uniform paradigm, i.e. marks *non-past tense* uniformly with all persons as in the L1. We hypothesized that the 3ps.sg. *-s* is a likely candidate to be misanalysed as the non-past tense marker, in which case, it would be applied to all persons in the non-past tense. Therefore acceptability judgements were elicited on the following sentence types:

Sentence type	Example sentences
a) '-s' as an AGR marker.	Champa usually takes the train on Fridays.
b) '-s' as a TNS marker.	You usually takes the train on Fridays.

In order to test these hypotheses the following statistical analyses were carried out.

(a) A two-way ANOVA test with Sentence type (3ps.sg. -s as an AGR marker, 3ps.sg. -s as a TNS marker) as a repeated measure and Proficiency level and Lexical version as grouping factors. (Table 6-1, appendix B.1.1).

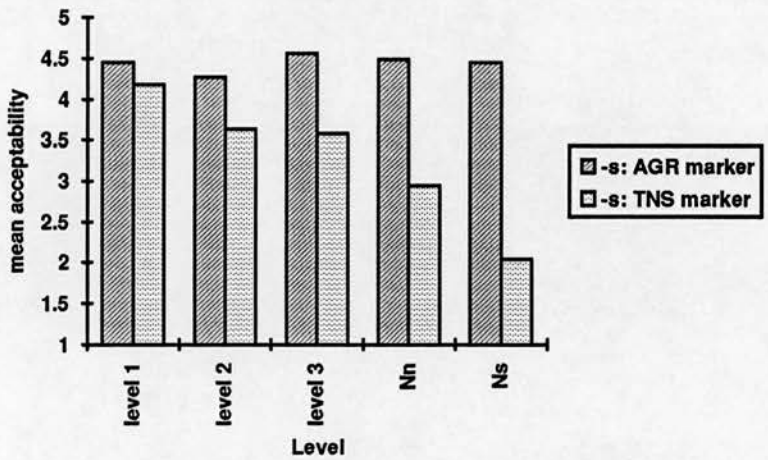
(b) A post-hoc Tukey test was conducted on pairs of means where the ANOVA test proved significant.

Results

Table 8. 1: Mean acceptability for sentences with and without the overgeneralisation of '-s'.

	-s an AGR marker, grammatical	-s as TNS marker, ungrammatical
level 1	4.45	4.1842
level 2	4.2727	3.6304
level 3	4.5625	3.5833
Nn	4.49	2.9444
Ns	4.4545	2.0454

Figure 8.1 : Mean acceptability for 3.ps.sg '-s' as a AGR / TNS marker.



We can observe from figure 8.1 that the overall acceptability of sentences decrease from level 1 to native speakers. The ANOVA test shows a main effect for Level ($F[110,4]=5.37$ $p<.0006$) and Tukey tests (tabled value 3.86) show that the difference in judgement between level 1 and near-native & native speakers is significant. This indicates that proficiency level is a determining factor in the perception of the two sentences tested. A further examination of figure 8.1 shows that while subjects at all levels discriminate between the grammatical and the ungrammatical sentences, the degree of discrimination increases with proficiency. The ANOVA confirms the

general preference across all proficiency levels for the grammatical sentence over the ungrammatical in the main effect for Attribute type (F[110,1]=63.40 p<.0001). It also statistically confirms the link with proficiency in the interaction between Attribute type x Level [F[110,4]=5.39 p<.0005]. Tukey tests (tabled value 4.47) show that the preference for the grammatical sentence over the ungrammatical is significant at near-native and native speaker levels. This indicates that subjects at levels 1, 2 & 3 do not reject the overgeneralisation of -s as the non-past tense marker. Therefore there is indeterminacy in the underlying grammar with regard to the 3ps. sg. -s at these stages in the intermediate grammar.

The decisive rejection of the 3ps. sg. -s as a non-past tense marker by near-native subjects indicates that (a) the 3ps. sg. -s has been correctly analysed as an agreement marker and (b) the morphological uniformity parameter has been reset from [+MU] to [-MU]. Although figure 8.1 shows that the degree of preference for the grammatical sentence over the ungrammatical in the near-native judgements is less than that shown by native speakers, this is not statistically significant.

The ANOVA test also show a significant main effect for lexical version, (F[110,4]=9.31p<.002). A comparison of the overall mean acceptability of the two versions show that the overall acceptability of version one is higher than version two. The difference could be due to subjects who saw version one using the higher end of the scale while those who saw version two used the lower end. This is consistent with the other results observed with lexical version in sections 7.1.2 and 7.2.1. There is no interaction between lexical version and either level or sentence type.

Discussion

The absence of a significant preference for -s as an AGR marker over the over-generalization of -s as a TNS marker at levels 1, 2 and 3 indicates indeterminacy with regard to the 3ps.sg. -s. It was predicted that given that the L1 marks non-past tense uniformly, the '-s' in English could be misanalysed as the non-past indicator in early ILG. The evidence does not disprove this hypothesis. We suggest therefore that the failure to reject -s with subject NP's other than the 3 person singular at levels 1,2 and 3 is a result of an L1-induced misanalysis.

This confirms our prediction that learners transfer the properties of TNS from the L1 to the L2 and therefore initially use L1 parameters to analyse L2 data in early ILG.

The rejection of the overgeneralisation of 3ps.sg. -s (that is -s as an tense marker) at near-native level confirms that '-s' has been analysed as an agreement marker in the second language grammar. This supports the position that L2 learners are able to move from a more restricted [+MU][1] grammar to a wider [-MU] setting of a parameter on the basis of positive evidence. Since there is no significant difference between the near-native and native intuitions, we conclude that the underlying grammar at near-native level approximates that of native speakers with regard to the 3ps.sg *-s*.

Now we will look at the data obtained from TNS marking in finite and non-finite sentences

8.2 The M-selection Properties of [-TNS]

According to linguistic theory, modals and infinitival *to* in English are base-generated under TNS. Modals are specified [+TNS] and *to* is specified [-TNS][2] (Stowell 1983). Therefore, modals can appear as the [+TNS] marker in finite sentences and *to*, in non-finite sentences as the [-TNS] marker. We used the modal *will* in finite sentences and *to* in non-finite sentences as diagnostics for the properties of TNS in the second language grammar[3].

Sentence type	Example sentences
a) [+TNS] marker *will*:	Pala hopes Champa will come to the party
b) [-TNS] marker *to* :	Pala wants Champa to come to the party
c) no TNS marker :	Pala wants Champa come to the party

The following statistical analyses were carried out:

(a) A two-way ANOVA test with Sentence type ([+TNS], [-TNS] and no TNS marker) as a repeated measure and Proficiency level and Lexical version as grouping factors. (Table 7-1, appendix B.1.1)

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[1] Morphologically uniform

[2] *to* can appear in infinitives but not small clause complements which have no INFL. (Stowell 1983)

[3] In child language acquisition research the emergence of 'be', modals and *to* are associated with the development of the [+/-] tense distinction (Guilfoyle 1984, Hyams 1992).

(b) A one-way ANOVA on the *mean preference* for the grammatical sentences over the ungrammatical sentence with Preference as the repeated measure. (Table 7-2, appendix B.1.1)

(c) A post-hoc Tukey test was conducted on pairs of means where the ANOVA tests proved significant.

Results

Table 8. 2: Mean acceptability rating for sentences marked [+TNS], [-TNS] and no TNS marker.

	[-TNS] marker *to*	[+TNS] marker *will*	no TNS marker
level 1	2.78	3.6734	3.22
level 2	2.5454	4	2.9848
level 3	3.145	4.0120	3.1458
Nn	3.6481	4.58	2.1111
Ns	4.8181	4.2272	1.8181

Figure 8.2: Mean acceptability for sentences with [-TNS], [+TNS] and no TNS marker.

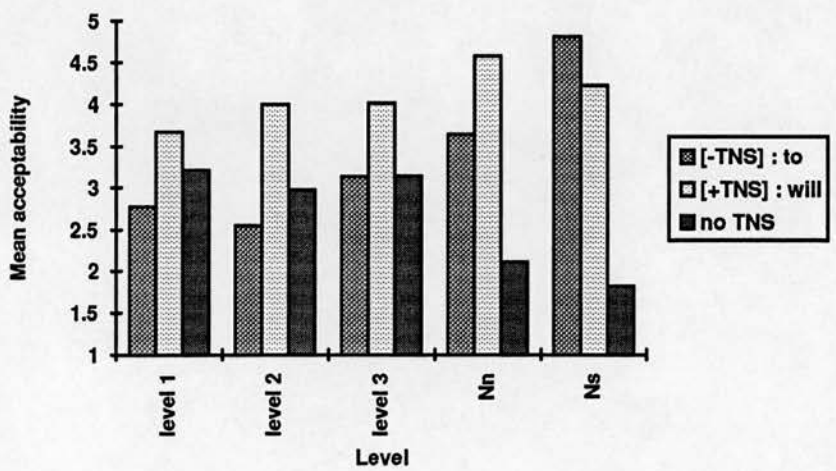


Figure 8.2 shows that all subjects make a distinction between the sentences in question, and at all levels other than native speaker level, the [+TNS] sentence is more acceptable than the other two sentences tested. The ANOVA test confirms that the type of tense marker is significant in the main effect for Tense type

(F[220,2]=61.65 p<.0001) and Tukey tests show (tabled value 3.31) that the overall preference for the [+TNS] over the sentence without a TNS marker is significant. This confirms that subjects at all levels express a preference for the sentence with the [+TNS] marker *will*.

It can also be observed from figure 8.2 that the degree of acceptability of sentences changes with proficiency. The ANOVA test shows an interaction between Tense type x Level (F[220,8]=11.68 p<.0001). Tukey tests show (tabled value 4.80) that the preference for the sentence with the [+TNS] marker over the other two sentences is significant at level 2, while the distinction made between sentences at levels 1 and 3 is not significant. This indicates a decisive preference for the finite sentence with *will* as a TNS marker at level 2. If we attribute the lack of a significant preference for any of the sentences at level 1 to indeterminacy, when judgements become determinate at level 2, the finite sentence without the [TNS] marker is rejected in comparison to the grammatical sentence marked [+TNS] and so is the non-finite sentence with the [-TNS] marker *to*. There is indeterminacy again at level 3 in the ILG.

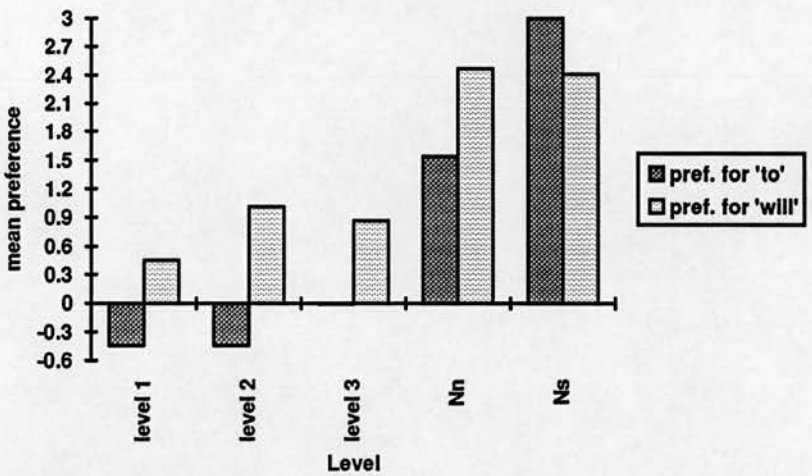
Tukey tests also show that at near-native and native levels the preference for the [+TNS] and the [-TNS] marked sentences over the sentence without a TNS marker is significant. This indicates that subjects at near-native and native levels reject both finite and non-finite sentences without a TNS marker. Thus, the TNS parameter with regard to [-TNS] is 'reset' at near-native level.

Figure 8.2 also shows that the pattern of preference expressed by near-native speakers differs from that of native speakers. The parallel ANOVA test carried out with only near-native and native speakers confirms the difference between the two groups in the interaction between Tense type x Level (F[68,2]=8.30 p<.0006) (Table 7-1, appendix B.3.1). In order to ascertain the particular difference in perception of the sentences by the near-native and native speakers, we carried out an ANOVA test on the mean preference for the grammatical sentences over the ungrammatical (Table 7-2, appendix B.1.1). This would also give an indication of the changes that take place in TNS in the ILG. The results are presented in Table 8.3 and figure 8.3.

Table 8. 3: Mean Preference for sentences with [+TNS] and [-TNS] markers over sentences with no TNS marker.

	Pref. for [-TNS] over no TNS marker	Pref. for [+TNS] over no TNS marker
level 1	-0.44	0.4534
level 2	-0.43939	1.01515
level 3	-0.00083	0.86625
Nn	1.53704	2.46889
Ns	3.0	2.40909

Figure 8.3: Mean preference for sentences with [+TNS] and [-TNS] markers over sentences with no TNS marker.



First, figure 8.3 shows that the strength of preference expressed by near-native speakers for the sentence with [+TNS] marker is higher than the similar preference for the sentence with the [-TNS] marker. Second, the strength of preference shown by near-native speakers for the [+TNS] is similar to that expressed by native speakers but the strength of preference shown for the [-TNS] sentence is lower than that shown by near-native speakers. The ANOVA test carried out on mean preferences (table 7-2, appendix B.1.1) shows an interaction between Preference x Level ($F[110,1]=4.76$ $p<.001$). Tukey tests (tabled value 4.47) confirm, first, that at near-native level, the difference in the strength of preference for the [+TNS] marked sentence and the [-TNS] marked sentence is significant. Since there is no similar inter-level difference between the sentences at native level this indicates that subjects at near-native level discriminate between the two [TNS] markers, but native speakers do not. Second, the Tukey tests show that the difference between the near-native and

native speakers in the *strength of preference* for the [-TNS] sentence is significant. This indicates that the degree of preference shown by near-native speakers for the [-TNS] sentence over the ungrammatical sentence is significantly less than that shown by native speakers. In other words, the native judgements are more determinate than the non-native.

Developmentally, the preferences shown by subjects at different levels of proficiency are not similar. The ANOVA test shows a main effect for Level ($F[110,4]=17.54$ $p<.0001$) confirming that proficiency level is a determining factor in expressing preferences. From figure 8.3 it can be seen that subjects at all levels express a preference for the [+TNS] sentence over the sentence without a TNS marker, but at levels 1 and 2, the ungrammatical sentence without a TNS marker is preferred to the non-finite sentence marked [-TNS]. As noted above, the link between proficiency and preferences is confirmed statistically in the interaction between Preference x Level ($F[110,1]=4.76$ $p<.001$). The Tukey tests show an inter-level significance at levels 1, 2 and 3 between the positive preference for the grammatical [+TNS] over the ungrammatical, and the negative preference for the ungrammatical over the grammatical [-TNS] sentences. This indicates that at these levels, in the hierarchy of acceptability, the most acceptable is the grammatical [+TNS] marked sentence while the least acceptable is the grammatical [-TNS] marked sentence; the ungrammatical no TNS sentence is less acceptable than the former and more acceptable than the latter. Tukey test also shows that the increase in the strength of preference for both grammatical sentences over the ungrammatical sentence is significant between levels 1,2,3 and near-native. This suggests that the perception of the grammaticality of the [-TNS] as well as the [+TNS] sentences increases with proficiency.

The ANOVA test carried out on the mean acceptability of the three sentences (table 7-1, appendix B.1.1) shows an interaction between sentence type and lexical version ($F[220,2]=6.77$ $p<.001$). An examination of the overall means show that the acceptability of lexical version one is higher than lexical version two. Tukey tests (tabled value 4.03) carried out show that the difference between versions in the acceptability of ungrammatical sentences is significant. However, there is no interaction with either attribute type or level. Once again the difference between versions could be due to subjects who saw version two using the lower end of the scale.

Discussion

Subjects at level 2 reject ungrammatical finite sentences without the [+TNS] marker *will* and also reject grammatical non-finite sentences with the [-TNS] marker *to*. This is in accordance with our predictions that TNS and its properties are transferred from the L1 to the L2. The [+TNS] marker is similar to [+TNS] marker in the L1 but the [-TNS] marker has different properties in the L1 and L2. We attribute the acceptance of *will* to the analyses of it as the [+TNS] marker and the rejection of *to* to the failure to analyse it as the [-TNS] marker at this stage.

The data also shows that at levels 1, 2 and 3 the preference for the non-TNS marked sentence over the grammatical non-finite sentence with *to*, is significant in comparison to the relationship between the [+TNS] and the non TNS marked sentence. We suggest that the rejection of the [-TNS] marker *to* is caused by the interaction of L2 input with L1 parameters. As noted in chapter four, Sinhala has only one [-TNS] form which is affixal. English has another [-TNS] form, the bare infinitive, to which learners in a classroom setting are heavily exposed in imperative structures. We suggest therefore, that in the underlying L2 grammar at levels 1 and 2, the bare infinitive is perceived as the [-TNS] form and therefore acceptable in non-finite sentences. *to* in the 'to infinitive' on the other hand may be seen as the preposition *to*, and therefore ungrammatical in non-finite sentences. This would account for preference for the bare infinitive form over the [-TNS] marker *to* in non-finite sentences.

Developmentally, no significant preference is shown for either the [+TNS], [-TNS] or the sentences without TNS at level 1 and level 3. In the second language acquisition literature (Sorace 1992b) it is noted that indeterminacy can be caused either because a rule is not present in the underlying grammar, or because the rule is being reanalysed. The indeterminacy at level 1 can be attributed to insufficient knowledge of the L2, but since subjects at level 2 express decisive preferences, we suggest that the indeterminacy at level 3 is caused by rules being reanalysed in the ILG. The decisive rejection of finite and non-finite sentences without a TNS marker at near-native level confirms the resultant change in the underlying grammar.

The rejection of the sentence without a TNS marker in comparison to both [+TNS] marked and [-TNS] marked sentences at near-native level shows that the TNS parameter has been 'reset' with regard to the m-selectional properties of [-TNS]. Although near-native speakers express a preference for the sentences marked [+TNS]

and [-TNS] over the sentence without a TNS marker, they also make a significant distinction between the two [TNS] markers. The preference for the [+TNS] marker is stronger than the preference for the [-TNS] marker. The native speakers do not make such a distinction. Further, there is also a difference between the near-native and native judgements in the *strength of preference* for the [-TNS] marker, but no such difference with regard to the [+TNS] marker. As noted, the [+TNS] marker does not require a resetting of the parameter since the L1 setting is acceptable in the L2. The [-TNS] marker *to*, however, requires a 'resetting' of the L1 parameter and the evidence shows that, although the L1 value is changed, the underlying grammar does not approximate that of native speakers. However, since the judgements are determinate, and the L1 values are not retained, we conclude that the underlying grammar with regard to [-TNS] is divergent [+UG] at near-native level.

The pattern of development of the [-TNS] marker indicates that learners initially transfer both the FC and its properties from the L1 to the L2. When judgements become determinate, at level 2, subjects reject sentences which appear ungrammatical according to the L1 parameters. With increased proficiency however, the rules are reanalysed and the L1 values are changed. The knowledge representation at near-native level of the aspect that does not require a resetting in the L2 coincides with that of native speakers, but the aspect that requires 'resetting' and is subject to misanalysis in the early stages does not approximate that of native speakers.

The evidence from both [-TNS] sentences and 3ps.sg -s show that values for TNS are 'reset' only at near-native level. The judgements given to sentences testing the properties of AGR show that assignment of values takes place at level 3. This confirms our hypothesis that it takes longer to recover from an L1 value than to assign values to aspects not activated in the L1.

Next, we will look at the development and near-native representation in the L2, of an aspect of TNS that is common to the learners L1 and the L2: past tense marking.

8.3 Past Tense Marking

Both Sinhala and English mark past tense overtly and uniformly and both languages mark past tense via an inflection (i.e. the regular past tense form), and via a morphological change in the root form, (the irregular past tense form). Recall it was predicted in H_3 (section 5.1.2) that learners will transfer TNS and its properties from the L1 to the L2. Hence, aspects which are common to the L1 and the L2 will be

recognized in early ILG. To test this hypothesis we elicited acceptability judgements on sentences with thematic verbs that inflect for past with i) the regular past inflection *-ed*, ii) the irregular past tense and iii) past tense sentences with a copula verb.

Sentence type	Example sentences
(a) [+] past regular , thematic verb :	Leela and Sumana visited their aunt last week.
(b) [-] past regular , thematic verb :	Leela and Sumana visit their aunt last week.
(c) [+] past irregular , thematic verb :	Champa's brother came home last Saturday.
(d) [-] past irregular , thematic verb :	Champa's brother come home last Saturday.
(e) [+] past tense, copula verb :	Before joining the Open University, Champa was teaching at NAITA.
(f) [-] past tense, copula verb :	Before joining the Open University, Champa be teaching at NAITA.

The following statistical analyses were carried out:

(a) A two-way ANOVA test with inflection-type (regular, irregular, copula) and attribute (+/- TNS marker) as repeated measures and Proficiency level and Lexical version as grouping factors.

(b) Post -hoc Tukey tests were carried out on pairs of means where the ANOVA tests proved significant.

Results

The judgements given to the different forms of past-tense marking in English can be seen in table 8.4 and figure 8.4 below.

Table 8. 4 : Mean acceptability rating for sentences indicating past actions with and without [+ Past] tense markers: regular, irregular and copula .

	regular past: *-ed*		irregular past: root change		copula verb	
	[+] past	[-] past	[+] past	[-] past	[+] past	[-] past
level 1	4.56	3.52	3.8	2.96	4.52	2.96
level 2	4.6363	3.0909	3.8181	2.9393	4.3939	2.8484
level 3	4.75	2.71417	4.77083	3.0	4.875	1.875
Nn	4.7777	1.9629	4.7037	2.5555	4.74074	1.81481
Ns	5.0	1.909	4.909	2.0	5.0	1.72727

Figure 8.4: Mean acceptability rating for sentences indicating past actions with and without [+ Past] tense markers: regular, irregular and copula .

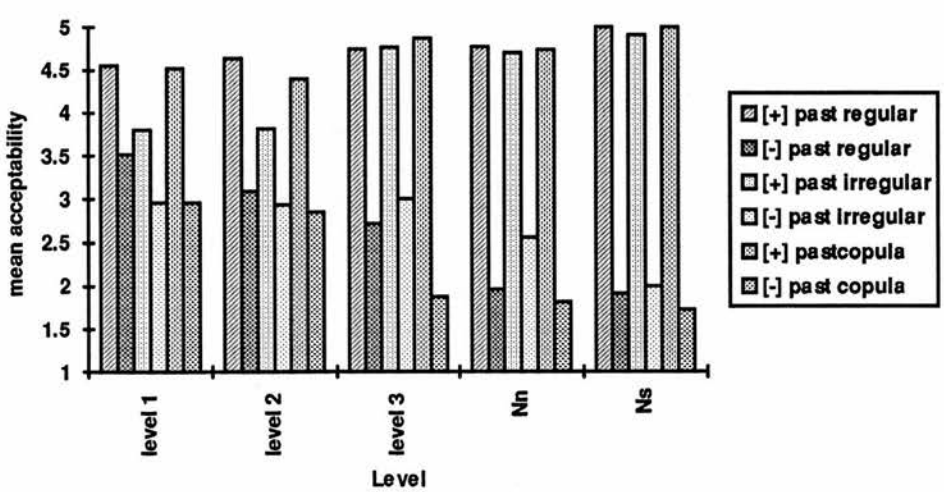
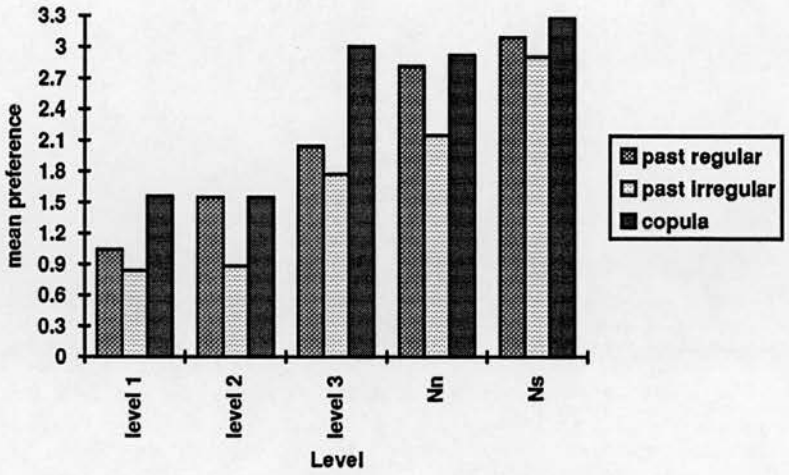


Figure 8. 5 graphically illustrates the mean preferences for the grammatical past tense sentences over the ungrammatical with all three inflection types.

Figure 8.5: Mean preferences for the grammatical past tense sentences over the ungrammatical.



It can be observed from figure 8.4 that subjects at all levels express a preference for sentences with past tense marking over the sentences without past tense marking. This is statistically confirmed in the ANOVA test where there is significant main effect for attribute type ($F[110,1]=79.03$ $p<.0001$). This indicates that there is an overall preference for the grammatical sentence over the ungrammatical at all levels. There is no interaction between attribute type and Level which suggests that overall, informants at all levels respond similarly to the presence or absence of [+ Past] tense marking.

The ANOVA test also shows a significant main effect for inflection type ($F[220,2]=144.15$ $p<.0001$) and Tukey tests show (at tabled value 3.31) that the overall preference for sentences that require the past regular is significantly higher than sentences which require the past tense form of the copula. This can be attributed to the difference in acceptability of the two ungrammatical sentences. Figure 8.4 shows that the ungrammatical sentence, requiring the *-ed* form is given a higher acceptability rating by subjects at lower levels than the ungrammatical sentence requiring the past tense form of the copula. This results in a higher overall acceptability of [+ Past] regular, sentences. The ANOVA test also slows an interaction between Inflection type x Level, ($F[220,8]=4.69$ $p<.0001$). Tukey tests (at a tabled value of 4.80) do not show either a significant increase or decrease in the acceptability of any of the inflection types between any two levels[4]. The question that

[4] The Tukey test shows that the overall acceptability (combined acceptability of the grammatical and the ungrammatical) of sentences requiring the regular past tense form at level 1 is significantly higher than the

arises next is whether learners at a particular level perceive the absence of [+ Past] tense marking with one type of inflection as less acceptable than others?

Figure 8.4 shows that the distinction made by subjects at levels 1 and 2 between the grammatical [+ Past] irregular and its ungrammatical counterpart with the uninflected verb is less than that with either the copula or the past regular sentences. The differences between inflection types in the strength of preference for the grammatical sentence is graphically illustrated in figure 8.5. The ANOVA test confirms the distinction between the inflection types and the presence or absence of the past tense marker at different levels. There is an interaction between Inflection type x Attribute type x Level ($F[220,8]=3.10$ $p<.002$). Tukey tests show (at a tabled value of 5.01) (a) that the preference for the [+ Past] tense marked sentence with the copula, i.e. the grammatical sentence, over its ungrammatical counterpart with the infinitive form of the verb, is significant from level 1, and (b) that the preference for the grammatical sentence with the regular past tense form is significant from level 2. The Tukey tests also show (c) that the preference for the grammatical sentence when the verb takes an irregular [+ Past] tense marker is significant only at level 3. Therefore, subjects at all levels reject sentences indicating past actions when the verb is not overtly marked for [+ Past] tense and the verb in question is the copula. The results also show that the absence of the regular past tense marker *-ed* is rejected at level 2 and the absence of the irregular past tense form is rejected at level 3. Therefore in the sequence of acquisition, the first past tense form to be recognised is the [+ Past] tense form of the copula which is followed by the regular past tense form. The last to be recognised is the irregular past tense form. Further, the gradual increase in the determinacy with which the absence of past tense marking is rejected with increasing proficiency is clearly seen in figure 8.5 which shows the strength preference for the grammatical sentences over the ungrammatical.

Figure 8.4 also shows that the near-native judgements are similar to the judgements given by native speakers'. The ANOVA test carried out with near-native and native speakers only (table 8-1, appendix B.3.1) confirms this, since there is no interaction between Level and any of the other variables. Therefore, it can be concluded that the near-native knowledge of past tense marking approximates that of native speakers.

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overall acceptability of sentences requiring the past irregular at level 2. This comparison does not yield any insights to the present study.

Discussion

The data shows that sentences indicating past actions (through a past tense adverb) but with the copula verb uninflected for TNS, are rejected by subjects from level 1 onwards and that the absence of the regular past tense inflection is rejected from level 2 onwards. The judgements are determinate. The ability of subjects at level 1 to recognize the ungrammaticality of the absence of the past tense inflection (in sentences with the copula verb) indicates the presence of TNS in the ILG at this stage. This confirms our hypothesis, that when the L1 and the L2 instantiate the same functional category, learners carry over the FC from the L1 to the L2. The inability to reject the absence of the regular past tense inflection *-ed* and the irregular past tense form at this stage can be attributed to a delay in lexical learning. That is, the non-recognition of the past tense forms is not due to the absence of TNS and its [+/-past] feature, rather, due to the ILG not stripping the affix from the verb at this stage of development. As soon as the Stem + Affix is analysed (in the regular past tense form), at level 2, the ungrammatical sentence with the bare infinitive form of the verb is rejected. The delay in the rejection of the irregular past form too can be attribute to the delay in lexical learning. In this case, learners have to learn, either via memorization or inductive learning mechanisms, the morphologically different past forms of a limited set of verbs. Therefore, on the basis of these results it can be concluded that TNS is present from the ILG from the outset. We suggest that the sequential recognition of the overt manifestations of past tense is caused by the delays in lexical learning.

The recognition of the [+ Past] feature of TNS at levels 1 and 2 but not the other features of TNS, for example the [-TNS] marker *to* , suggests that aspects of the FC that are common to the L1 and L2 are recognized prior to those which require 'resetting' in the L2 grammar. This also suggests that when the values assigned to a particular property of a FC are similar in the L1 and the L2, acquisition is facilitated.

As discussed earlier, marking past tense via an inflection as well as via a morphologically changed root are found in Sinhala. However, as seen, the regular past tense inflection in English is acquired before the irregular past tense form in the development of the ILG[5]. The regular past tense inflection, *-ed*, is salient and unlike

[5] The order of the acquisition of morphemes by L2 learners, in the morpheme acquisition studies carried out by Krashen (1977) and Anderson (1978) the irregular past tense is acquired at a stage earlier than the regular past tense. On the other hand, in one of the studies carried out by Larsen-Freeman (1975), it is noted that the regular past tense form precedes the irregular past tense form as is the case in the present study.

the irregular past tense forms, does not involve the learning of individual lexical items. In other words, learners can make use of the principle of Generalization[6] with respect to regular past tense whereas in the case of the irregular past, they cannot. Thus, the similarity with the L1 values combined with salient positive evidence in the L2 and the application of learning principles, may account for the acquisition of the regular past tense prior to the irregular past tense forms in ESL in the case of native speakers of Sinhalese.

Further, Zobl and Liceras (1994) on reanalysing the data from the morpheme acquisition studies note that in the acquisition of ESL, the 3ps.sg *-s* and regular past tense *-ed* are acquired at the same stage which is the last. In contrast to these studies, the present study shows that the past regular , *-ed* precedes the 3ps. sg. *-s*, which as seen in section 8.1 of this chapter, is appropriately analysed as an AGR marker only at near-native level.

The data also shows that the near-native knowledge of past tense marking in English approximates that of native speakers with all three forms examined.

To conclude, native speakers of Sinhalese learning English as an L2, carry over TNS and its properties from the L1 to the L2. The observed developmental sequence also shows that when the L1 and the L2 assign the same values to a particular feature of a particular FC (as in the case of [+ Past] tense marking), the acquisition of that aspect is facilitated. It was also suggested that the acquisition of the overt manifestations of [+ Past] tense is determined by lexical learning. Aspects which are salient in the L2 input and allow generalization are acquired prior to those that require individual lexical learning. At near-native level, the L2 knowledge representation matches that of native speakers in aspects of FCs which are common to the L1 and the L2, i.e. aspects which do not require a 'resetting' of values.

[6] See section 3.3.2. for a discussion of the learning principles available to learners

8.4 Conclusion

We can summarise the development of TNS in the ILG as follows.

	level 1	level 2	level 3	Nn	Ns
1. Projection of TNS in complement sentences (resetting)	-	-	+	+	+
2. Values for non-past tense (resetting)	-	-	-	+	+
3. Values for [-TNS] (resetting)	-	-	-	+*	+
4. Values for [+TNS] (similar)	-	+	-	+	+
5. Values for [+ Past] tense (similar)	+	+	+	+	+

* does not approximate that of native speakers.

a) The recognition of the [+ Past] tense inflection in sentences with the copula verb at level 1, suggests that TNS is present in the ILG from the outset.

b) The recognition of the [+ Past] tense inflection, the recognition of the [+TNS] marker *will* and the failure to recognize the [-TNS] marker *to* at levels 1 and 2 shows that elements which are common to the L1 and the TL are recognised prior to those found only in the L2.

c) The high acceptability of complement sentences without TNS, and the acceptability of the non-finite sentence with a bare infinitive indicates that sentences which are grammatical according to the L1 properties of TNS are accepted in early ILG even though they are ungrammatical in the L2.

d) The failure to reject the overgeneralisation of the 3ps. sg. *-s* to persons other than the 3rd person singular in the non-past tense, and the acceptance of the bare infinitive in non-finite sentences, at lower levels of proficiency, lend support to the argument that the interaction of the L2 input with L1 parameters can lead to misanalysis of the L2 data.

The facts in a), b), c) and d) bear out our hypotheses that in early ILG learners transfer TNS and its properties from the L1 to the L2. They also confirm our

prediction that, due to the analysis of the L2 data via L1 parameters, some aspects of the L2 grammar will be misanalysed.

The developmental sequence of TNS in the L2 can be characterized as follows

Level 1: TNS is projected in the ILG. This is seen in the significant preference for sentences with [+ Past] tense marking on copula verbs over sentences with the uninflected form of the verb. Although subjects at this stage do not express an explicit preference for any of the other sentences tested, in the hierarchy of acceptability , the [+TNS] marked sentence is given a higher acceptability rating in relation to the sentence without a TNS marker and the sentence with the [-TNS] marker. Further, in the hierarchy of acceptability the ungrammatical [NP XP] complement sentence is given a higher acceptability rating than the other ungrammatical complement sentences (see figure 7.2). The higher acceptability rating given to sentences which are consistent with the L1 values of TNS, further confirm the presence of TNS in the ILG at this stage of development.

Level 2: Learners transfer the properties of TNS from the L1 to the L2. The properties of the [+TNS] marker, and the property of [+/- past] tense marking are similar in the L1 and the L2. At level two a) sentences with an adverb indicating past action, but in sentences with the verb (the copula or a main verb that takes the regular past inflection) uninflected for TNS are rejected in relation to their [+ Past] tense marked counterparts, b) a significant preference is expressed for the finite sentence with a [+TNS] marker over the sentence without a TNS marker, and c) the non-finite sentence with the [-TNS] marker *to* is rejected in comparison to the sentence with the [+TNS] marker. The rejection of the [-TNS] marker which has values different from those of the L1 suggests that the m-selectional properties of TNS are transferred and the rejection of sentences without past tense marking indicates that the [+ Past] feature is also carried over. In addition to this, subjects at this level also do not reject complement sentences without a TNS projection and neither do they reject the overgeneralisation of the 3ps.sg. *-s* affix in sentences with subject NP's other than third person singular in the non-past tense. This too indicates that learners use the values assigned to TNS in the L1 to analyse the L2 data. The L1 values in this case are the optional projection of TNS in complement sentences and the [+] value of the MUP. Further, the inability to reject the 3ps.sg. *-s* and the rejection of the [-TNS] marker *to* in comparison to the uninflected form of the verb,

also suggest that in some cases the transfer of the L1 properties of TNS leads to a misanalysis of the L2 data.

Level 3: Values to some aspects of TNS are reset in the ILG whereas the values to other properties of TNS are in the process of being reassigned. Subjects reject all sentences indicating past actions without the [+ Past] inflection on the verb. This suggests that the phonetic manifestations of [+ Past] tense (copula, the past regular and past irregular) are appropriately analysed in the ILG. Subjects at this stage also reject complement sentences without TNS, indicating that the values to that particular property of TNS have been reset.

However, at level 3 subjects do not reject the overgeneralisation of the 3ps.sg *-s* as a non-past tense marker, nor do they reject the ungrammatical sentence without a TNS marker in comparison to the sentence with the [-TNS] marker *to*. This indicates that the values to the MUP (the change from + to -) and [-TNS] (the change in the m-selectional properties from 'bound' to 'free') are not yet reset at this stage. In the development of AGR it was noted that the affix is stripped from the verb at level 3, resulting in subject-verb concord. The indeterminacy shown with regard to the 3ps.sg. *-s* here however suggests that, although the acquisition mechanism has stripped the affix from the verb, it has not yet determined the appropriate analysis of the morpheme. In addition to this, subjects at level 3 also do not express a significant preference for the [+TNS] marked sentence, which they did at level 2. This suggests that the ILG grammar is being restructured to accommodate the revised values of TNS causing indeterminate intuitions.

Near-native level: The values to all aspects of TNS have been reassigned in the second language grammar. The near-native knowledge matches that of native speakers on some properties of TNS, but differ in others. The values to aspects of TNS which were assigned at level 3 are carried over, but the judgements become more determinate. Values which were in the process of being reassigned at level 3 are in place by near-native level. A preference is expressed for [-TNS] marked non-finite sentence over the sentence without a TNS marker. This suggests that the m-sectional properties of the [-TNS] marker have been 'reset'. Subjects also reject the co-occurrence of the 3ps.sg. *-s* with persons other than the third person singular, signaling a resetting of the MU parameter.

The results thus reveal a three-stage developmental sequence:

- A first stage corresponding to levels 1 and 2 where learners carry over TNSP from the L1. The data shows that learners also transfer the properties of TNS from the L1 to the L2 and thus there is a high level of acceptability for sentences which are grammatical in the L1 regardless of whether they are grammatical or ungrammatical in the L2. The use of L1 properties of TNS also leads to the misanalysis of the L2 data.

- An intermediate stage coinciding with level 3, where some values to TNS are reset but others, which were initially misanalysed, such as the [-TNS] marker and 3ps.sg *-s*, are in the process of being reanalysed.

- A third stage where all of the values to the properties of TNS are reset.

We predicted that learners will take longer to 'reset' parameters than to 'activate' new parameters in the development of the IL. This prediction is borne out in the development of TNS and AGR in the ILG of Sinhalese learners of English. Although TNS itself is present in the ILG from level 1, the reassignment of values to the properties of TNS takes place at level 3 and at near-native level. On the other hand, AGR is instantiated at level 2 and the Kase, [+Number] and [+Person] features are assigned values at level 3. Similarly, in the development of complement sentences, subjects at level 2 reject sentences without the AGR projection (manifested in verb movement to AGR), but reset the obligatory requirement for TNS only at level 3. Thus, the evidence shows clearly that the activation of new FCs and resetting values to FCs that already exist in the L1 grammar but with different properties, take place at different stages in the IL continuum.

We also predicted that L2 learners can reset the L1 values to properties of TNS when they are different in the L2 and that the underlying grammar will approximate that of native speakers. The first part of the prediction is borne out. With respect to the underlying grammar at ultimate attainment, the knowledge representation with regard to non-past tense marking and TNS in complement sentences is similar to that of native speakers. However, the knowledge representation of *to* as a [-TNS] marker is different from that of native speakers.

On the other hand, near-native judgements approximate those of native speakers in [+TNS] marking in finite sentences and [+ Past] tense marking. This suggests that the

near-native grammar matches that of native speakers when the L1 and the L2 properties of FCs are similar.

To conclude, L2 learners are able to change the values of TNS from those of the L1 to those of the L2. However, the acceptability of aspects which are initially misanalysed i.e. [-TNS] marker *to* , and person agreement marking on thematic verbs (the 3ps.sg -s is initially misanalysed) do not approximate that of native speakers.

In the final chapter we will draw our overall conclusions based on the findings reported in this chapter and the previous chapter, (i.e., Chapter Seven).

Chapter Nine

DISCUSSION AND CONCLUSION

This thesis was defined as an investigation into the development of FCs and the nature of the knowledge representation at ultimate attainment of FCs in the L2: both FCs that are not activated in the L1 and FCs that are activated in the L1 and the L2 but with different properties. The FC's examined were AGR and TNS. The critical assumptions on which the investigation was based are (a) that L2 learners have access to the 'UG lexicon' and are therefore able to activate FC's not activated in the L1, (b) that L2 learners are able to 'reset' values to FC's when the properties of the FC are different in the L2 (provided they do not have to move from a superset to a subset grammar), (c) that in L2 acquisition it takes longer to 'reset' values to parameters than to 'activate' parameters and (d) that depending on the availability of UG, the underlying grammar at near-native level may be 'complete' 'incomplete' 'divergent[-UG]' or 'divergent [+UG]. It was assumed that if with regard to any of the properties of AGR or TNS the second language grammar is incomplete or divergent, near-native intuitions would not coincide with those given by native speakers. Further, if the underlying grammar is incomplete, the judgements given by near-native subjects would be inconsistent and indeterminate and if the underlying grammar is divergent, the near-native judgements will be consistent and determinate.

The activation of new FCs in an L2 grammar and the nature of the knowledge representation at ultimate attainment regarding its properties have not been previously investigated, and neither have they been compared with the 'resetting' of values to existing FC's. It was the goal of this thesis to provide evidence for the development of the different types of FCs in the L2 and the nature of the underlying grammar at ultimate attainment. The success of the enterprise depends on the extent to which the experimental evidence provides insight to the development of the two types of FCs and to the knowledge representation attained at near-native level.

In order to evaluate the results it is necessary to reject the null hypotheses. Therefore we will refer to the experimental hypotheses in Chapter Five. Our main experimental hypotheses were under two headings: ultimate attainment and development in the ILG.

9.1. The Nature of the Underlying Grammar at Ultimate Attainment.

9.1.1 AGR: The knowledge representation at ultimate attainment

The acquisition of AGR in English by Sinhalese first language speakers has shown that FC's can be 'activated' in the L2. Subjects at near-native level consistently reject sentences that lack the functional category AGR. Their judgements are determinate. If the underlying grammar was incomplete, the judgements given by near-native speakers to sentences testing AGR and its properties would be inconsistent and indeterminate. The evidence allows us to reject the null hypothesis that L2 learners cannot 'activate' functional categories not activated in their L1 and therefore that the underlying grammar at near-native level is incomplete.

The data shows that AGR is projected in the second language grammar by level 2. The judgements elicited on the features of AGR; Kase, [+Number] and [+Person], show that these features are assigned values at level 3. The near-native judgements approximate those given by native speakers in [+Number] agreement. In the case of [+Person] agreement marking, near-native judgements match those of native speakers with copula and auxiliary verbs, but differ with regard to thematic verbs. In the near-native grammar there is a hierarchy of acceptability with regard to [+Person] agreement marking on the different verbs: the absence of [+Person] agreement marking on thematic verbs, though unacceptable, is relatively less unacceptable than the lack of overt agreement marking on the other verbs. Native speakers, in contrast, do not make a distinction between the verbs in overt agreement marking. The difference in near-native and native speaker judgements on the relative unacceptability of [+Person] agreement marking suggests that the second language grammar is divergent with regard to the [+Person] feature of AGR. The consistent and determinate rejection of all sentences without subject verb agreement (both Number and Person), however, confirms that AGR is instantiated and subject-verb co-indexation, which involves feature sharing, takes place in the second language grammar at near-native level.

At near-native level the judgements to sentences relating to the Kase feature of AGR are determinate and consistent in that all sentences without overt subjects are rejected: null expletive subject NP's in sentences with thematic and raising verbs and null referential subject NP's in sentences with thematic and raising verbs. However, in the hierarchy of acceptability, sentences in which the content of the null subjects can be recovered from the discourse are judged to be less unacceptable by near-native

speakers than null elements whose content cannot be identified from the discourse. A similar distinction is not made by native speakers. This suggests that the underlying grammar is divergent. In the light of a recent reanalysis of the null subject parameter, we shall argue (section 9.1.1.1) that although the near-native grammar is divergent it is one permitted within UG. It will be shown that the combination of misleading positive evidence with the L1 parameter setting contribute to the divergence in the near-native grammar with regard to the Kase feature.

9.1.1.1 Proposed Explanation

In a recent proposal Hyams (1994) reformulates the null subject parameter. It is argued that

> " ..all languages are null subject languages as regards the licensing requirement and will vary only in the *position* in which it is licensed: an A or A'-position. The locus of variation in the null argument phenomenon is identification" (1994:36).

According to this analysis, *pro* is licensed under Spec-head agreement. In pro-drop languages (Italian) *pro* is licensed in [Spec, IP] under Spec-head agreement with AGR. In (colloquial) German and Dutch *pro* is licensed in [Spec, CP] by agreement with the INFL features on the fronted verb in COMP which has picked them up from AGR.

Hyams identifies three types of languages depending on where *pro* is located and how it is identified. In languages such as Italian the null subject is in [Spec,IP] which is canonically an A-position and it is identified by a 'rich' AGR. This setting, according to Hyams is the default option in the null subject parameter. In languages such as colloquial German and Dutch, as well as in languages such as Chinese, the null subject is in [Spec,CP] which is canonically an A'-position. [Spec,CP] is the topic position and the null topic is identified by a discourse topic via topic chaining[1]. This constitutes the wider or the superset value of the null subject parameter.

English is a kind of hybrid in that the null subject is in [Spec,CP], as in colloquial German (or Sinhala), but it is identified in adult English by AGR (and in child language by the discourse topic as in Sinhala/German). The situation is said to be a marked one. Following Rizzi (1994) Hyams proposes that while [Spec,CP] is

[1] i.e. it is topic-drop.

canonically an A'-position, it can sometimes be an A-position by transitivity. When the subject bearing the index of AGR moves to [Spec-CP], by transitivity, the [Spec,CP] is construed with agreement (assuming that CP inherits the index of the specifier) and thus becomes an A-position.

(1) $[_{CP}\ John_i\ [\ _{C'}\ [\ _{IP}\ t_i\ AGR_i\ ...]]]$

Hyams suggests that in English *pro* is licensed in the non-canonical A-position derived by movement, [Spec, CP]. Thus, unlike in Italian where the Spec-head agreement relation is local, i.e., between [Spec, AgrP] and AGR^0, in English the licensing Spec-head relation is non-local: [Spec,CP] and AGR^0. This makes topic-drop marginal in adult English and less frequent than in a canonical pro-drop or topic-drop language. Nevertheless, English does permit null subjects:

a. Wanna leave? - omission of 2nd person subject in questions.
b. Seems like it's gonna rain - non-thematic subjects.
c. Had a wonderful day today - diary context.

Hyams claims that English is a 'residual topic-drop language' which permits topic drop under restricted circumstances. Thus according to this analysis, English is not a language that excludes null subjects under all circumstances.

This analysis provides an explanation for the difference in near-native and native grammars in the perception of null referential subjects in sentences with thematic verbs.

Under this formulation of the null subject parameter, the parametric variation between English and Sinhala can be characterised as follows: In Sinhala *pro* is licensed in the canonical A'-position and identified by the discourse topic, in adult English *pro* is licensed in a non-canonical A-position and identified by AGR. In both languages the null element is licensed in [Spec-CP] but in English it is an A-position and in Sinhala it is an A'-position.

Sinhalese learners, according to the reformulated null subject parameter, would be moving

a] from a marked value to a default one in one sense
b] from an unmarked value to a marked value in another.

Based on child language acquisition, Hyams suggests that the default option in the null subject parameter is the licensing of null arguments in an A-position. Therefore, languages such as (colloquial) German and Sinhala constitute the marked value as null topics are licensed in an A'-position. Thus, Sinhalese learners would be moving from a marked to an unmarked value since English licenses a null argument in an A-position and Sinhala does so in an A'-position.

According to White's (1988) prediction, it is more difficult for L2 learners to move from a marked value to an unmarked. In order to recover from the marked setting, learners require negative evidence. But in this case, given that English marginally permits topic drop, learners would receive positive evidence which *confirms* that English permits null referential subjects rather than it does not. Second, according to the 'failure driven' approach, the motivation for revising existing values of parameters arise only if the on coming string cannot be analysed by the existing parameters (Bowerman 1987, Schwartz and Sprouse 1994).[2] Therefore if the L1 parameter setting can accommodate the L2 input, as in this case, there would be no motivation for the learner to revise the parameter to licensing null subjects in an A-position rather than in an A'-position.

Learners would in another sense be moving from an unmarked to a marked value. In Sinhala the null argument is licensed in the canonical A'-position [Spec, CP] while in English the null argument is licensed in a non-canonical A-position, [Spec, CP] - which is a grammatically marked option (Hyams 1994). Although, as discussed previously, it is claimed that in L2 acquisition movement from an unmarked to a marked option is relatively easy, in this instance the development is not straightforward. The movement requires a revision of the status of [Spec, CP] from an A'-position to an A-position by transitivity and a revision of identification of the null argument from external (via topic chaining) to non-local ([Spec, CP] and AGR). Given the lack of evidence we suggest that learners do not change the status of [Spec, CP] in the L2 grammar and null subjects continue to be licensed in an A'-position. This implies that the null subject continues to be identified by the discourse topic, via a discourse bound null operator in [Spec, CP]. The realization that AGR in English is 'poor' and does not facilitate the recovery of the null element internally could be the reason why null subjects are permitted only when its content can be recovered from the discourse.

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[2] The motivation for revising values to a parameter is discussed in Chapter three section 3.2.2.2.

We propose that a combination of factors, i.e. the nature of the L1 and the L2 parameter settings and L2 input interacting with L1 parameters, prevent Sinhalese learners from resetting the parameter to licensing of null subjects in [Spec,CP] with an A-status and identification by AGR (as in adult English). Therefore null topics continue to be identified by a discourse topic when a discourse topic is available. Thus, while topic drop is marginal in native English, it is permitted in the second language grammar provided it can be identified by a discourse topic. However, unlike the L1, the obligatory expletive subjects and raising-to-subject operations prove that AGR is present. The presence of expletive subjects and raising to subject operations also indicates that the L2 does not allow null subjects in [Spec, INFL], only null subjects in [Spec, CP]. Since, the movement of the null operator to [Spec, CP] entails leaving a trace in subject [Spec, IP] position (Huang 1984), this would imply that in the L2 grammar [Spec,IP] must be occupied either by an overt element or by the trace of the moved argument. The null referential argument in [Spec, CP] would be licensed via Spec-head agreement with AGR and identified by a discourse topic as in Germanic languages. This indicates that the underlying grammar with regard to licensing and identification of null subjects is different from that of the L1 as well as the L2.

In our discussion in the contrastive analysis chapter, we saw that languages can be ranged along a continuum according to the distribution of null subjects and null topics, which we repeat here (Weissenborn 1992, Huang 1984). Under the present analysis however, this needs to be modified, for it was seen that English permits null subjects under restricted circumstances.

(2)

+ null topic + null subject	+ null topic - null subject	- null topic + null subject	- null topic - null subject
Chinese, Sinhala	German	Italian, Spanish	English (?)

We propose that the underlying grammar at near-native level would have a [+]null topic, but be [-]null subject[3], a position not obtained in either the L1 or the L2. Although the underlying grammar at near-native level is different to that of the L1 and the L2 it is still permitted within UG and therefore, can be classified as divergent[+UG].

To conclude, native speakers of Sinhalese activate AGR in ESL. The knowledge representation at ultimate attainment of some of the features of AGR are divergent [+UG], whereas others approximate the knowledge representation of native speakers of English. The aspects which are divergent are Kase and [+Person] agreement marking on thematic verbs.

As argued in section 4.3.5, with regard to the pro-drop parameter Sinhalese learners are required to reset values from a larger pro-drop grammar to a smaller non-pro drop grammar. The data shows that near-native speakers decisively reject all sentences with null subjects. We interpret this as an indication that the ILG has changed the L1 value of [+] null subject to [-]null subject in the L2. We also argued in this section that the positive evidence available in English is more likely to confirm rather than contradict the initial assumption of learners that English too permits topic-drop though under restricted circumstances. It was concluded that the underlying L2 grammar is [+] null topic and [-] null subject, a combination permitted in natural languages (Weissenborn 1992).

With regard to [+Person] agreement marking on thematic verbs, the evidence indicates (section 8.2) that in early ILG the 3ps.sg *-s* is misanalysed as a non-past tense marker which occurs uniformly with all persons in the non-past tense[4]. Although at near-native level the 3ps.sg *-s* is correctly analysed as an AGR marker, the near-native judgements on subject-verb concordance in sentences with thematic verbs are different from those of native speakers. However, given that subject-verb concordance is not found in the learners L1, and near-native speakers decisively reject the absence of [+Person] agreement marking on all verbs, we concluded that the [+Person] agreement feature is present in the L2 grammar.

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[3] If this analysis is correct, the underlying grammar of near-native speakers of Sinahla will not permit null subjects when [Spec, CP] or head of C is occupied by a lexical element, as in emebedded clauses and Wh-questions.

[4] Another possibility for the delay in the acquisition of the 3ps.sg. -s is its typologically marked nature . See section 4.7.1 of Chapter four for a discussion on English marking subject-verb agreement only with the universally unmarked 3 ps. sg. subject.

In both instances, Kase and [+Person], where the near-native judgements show a different hierarchy of acceptability to that shown by native speakers, the development of the ILG shows an initial misanalysis followed by a reanalysis.

9.1.2 TNS: The knowledge Representation at Ultimate Attainment

In the case of the Functional category TNS, which is instantiated in the learners L1 as well as the L2 but with different values, it was hypothesized that if L2 learners do not 'reset' parameters but retain the L1 values of TNS, sentences consistent with the L1 parameters (including ungrammatical sentences and misanalyses) should be accepted at near-native level. Instead, at near-native level sentences which are grammatical according to the properties of TNS in the L1 but ungrammatical within the properties of TNS in the L2 are rejected. The judgements are determinate and consistent. Therefore we can reject the null hypotheses that when the L1 and the L2 instantiate the same FC with different properties second language learners do not reset the values to accord with those of the TL.

However, contrary to expectations, the judgements on all of the properties of TNS do not coincide with those given by native speakers. Of the aspects that need 'resetting' in the L2, the values to the projection of TNS in complement sentences and non-past tense marking are reassigned to approximate those of native speakers. The judgements with regard to the [-TNS] marker '*to*' in non-finite sentences, on the other hand, are different. We argued in section 8.3 that a combination of the m-selectional properties of [-TNS] in the L1 and misleading L2 input by way of imperatives leads learners to misanalyse the uninflected form of the verb as the [-TNS] form in English in early ILG. We also argued that at this stage learners do not differentiate between the [-TNS] marker '*to*' and the preposition '*to*'. By near-native level the m-selectional properties of [-TNS] are reset and '*to*' is appropriately analysed as the [-TNS] marker. However, the near-native judgements though decisive are not as determinate as those given by native speakers. Thus, although the L1 values to TNS are changed the knowledge representation near-native speakers have does not approximate that of native speakers in all of the properties of TNS.

The [+TNS] marker has similar m-selectional properties in the L1 and the L2 and the [+ Past] tense feature of TNS is also common to both languages. The near-native speaker judgements on these aspects of TNS are similar to those of native speakers and therefore, it can be assumed that the knowledge representations are similar too.

The evidence from AGR and TNS enables us to draw the following conclusions on the nature of the underlying grammar of Sinhalese speakers of English at near-native level. In all of the instances where the underlying grammar is divergent (null referential subjects, subject-verb agreement marking on thematic verbs and '*to*' as a [-TNS] marker in infinitival complements,) the interaction between L1 parameters and the L2 data (which may be misleading) leads to a misanalysis in early ILG. Although the grammar recovers from the misanalysis, as in the case of agreement marking on thematic verbs or the [-TNS] marker, the knowledge representation of near-native speakers is different from that of native speakers.

To summarise, the near-native grammar is divergent on aspects which , during the developmental stages were misanalysed due to the interaction of L2 input with L1 parameters and learning mechanisms. The underlying L2 grammar is similar to that of native speakers in aspects which are appropriately analysed initially.

9.2 IL Development

We predicted that learners will transfer both FCs and their properties from the L1 to the L2. If TNS and the properties of TNS were not carried over from the L1, in early ILG, no distinction would be made between sentences which are grammatical in the L1 but ungrammatical in the L2 and other ungrammatical sentences and learners would not misanalyse the L2 data in accordance with L1 parameters. There would also be no difference in development between aspects common to the L1 and the L2 and aspects found only in the L2.

The acceptance of ungrammatical TNS-less complement sentences [NP XP] up to level 3, and the rejection of ungrammatical complement sentences [NP [V+TNS] XP] and [NP+V+XP] by level 2 indicate that a distinction is made between sentences which are grammatical in the L1 but ungrammatical in the L2 and other ungrammatical sentences. The acceptance of the 3ps. sg. *-s* affix with persons other than the 3rd person singular in the non-past tense at levels 1, 2 and 3 and the acceptance of non-finite sentences with the bare infinitive at levels 1, 2 and 3 indicate that learners misanalyse the L2 data in accordance with L1 parameters.

Sentences in the past tense without verb movement to TNS (indicated by the past tense inflection on the verb) are rejected from level 1 onwards and finite sentences

without the [+TNS] marker are rejected from level 2 onwards. In contrast, the [-TNS] marker in non-finite sentences and non-past tense marking appear only at near-native level. This shows that the properties of TNS which are shared by the L1 and the L2 appear earlier in the IL continuum than features of TNS which are different in the L1 and the L2.

Thus the evidence enables us to reject the null hypothesis that TNS and its properties will not be carried over from the L1 to the L2 in early ILG.

In addition to this, based on the premise that the final state of the L1 grammar forms the initial state of the L2, we predicted that aspects not activated in the L1 grammar would be 'filtered' out in early ILG and that in contrast, aspects common to both the L1 and the L2 would be recognised. The indeterminacy shown by subjects at lower levels of proficiency with respect to the consequences of AGR, i.e. verb movement, subject-verb agreement and obligatory overt subjects, bear out the first part of the prediction. The evidence also showed that in the development of the ILG; (a) sentences requiring referential subjects (both overt and null) are recognized at levels 1 and 2 and sentences requiring expletive subjects are recognized at level 3, (b) at level 2, the judgements on sentences with thematic verbs are more determinate than judgements on sentences with raising verbs and (c) the [+TNS] marker '*will*' is recognized at level 2 but the [-TNS] marker '*to*' is recognised only at near-native level. The recognition of elements which are common to the L1 and the L2, in early ILG, i.e. referential NP's, thematic verbs, the [+TNS] marker and [+ Past] tense marking, and more importantly the rejection of elements not found in the L1, i.e. expletive subjects and the [-TNS] marker '*to*' support the second part of the prediction. The evidence thus substantiates the claim that in early ILG L2 data is analysed via L1 parameters.

We also predicted that in the acquisition of a second language it would take longer to 'reset' values to functional categories existing in the L1 than to 'activate ' and assign values to new functional categories. This prediction too is borne out in the study, since AGR and its properties are present in the ILG by level 3 but values to TNS (other than TNS in complement sentences at level 3), are reassigned only at near-native level. The null hypothesis that there will be no difference in the development of FCs activated in the L1 and the L2 (with different values) and FCs activated only in the L2 can therefore be rejected.

In addition, the present study also reveals several other characteristics in the development of FCs in an L2. In the next section (9.2.1) we will look at the development of AGR, the FC that needs activating in the L2 grammar followed (9.2.2) by TNS, the FC where the values have to be reset in the L2 grammar.

9.2.1 The Development of AGR in the ILG

In the sequence of development, verb movement to AGR takes place at level 2 and the features of AGR appear at level 3. This suggests that the instantiation of this FC is followed by the assignment of values to its properties. Therefore our data supports the position adopted by Demuth (1992) that although overt manifestation of a FC are instrumental in the instantiation of the FC, phonetic realization is possible only after the emergence of the maximal projection. Since the data indicates that subjects at level 2 do not distinguish between the different forms of the verb, following Eubank (1992) we argued (in section 7.3) that the affix has not been stripped from the verb at this stage. Once the STEM+AFFIX is stripped and the affix is analysed, it is no longer base generated with the verb, but generated under the appropriate FP. This results in concordance with the subject NP at level 3. Since the assignment of values to the properties of AGR corresponds to the analysis of the overt manifestations, we proposed that the acquisition mechanism uses the overt manifestations to determine the properties of the FC.

The pattern of the development of AGR in the L2 grammar can be characterised as sudden and discontinuous. The verb movement to AGR at level 2 is followed by the appearance of all the overt manifestations of AGR at level 3. This shows that a global restructuring has taken place in the ILG from the one stage to the next, resulting in sudden changes in superficially unrelated properties. The appearance of all the features of AGR at level 3 therefore suggests that clustering (and by implication parameter setting) takes place in L2 acquisition too. This pattern of development implies that L2 acquisition cannot be guided purely by inductive learning mechanisms.

Three distinct stages can be observed in the development of a new functional category in the second language grammar.

Stage I: There is no AGR projection. The ILG is characterised by an absence of verb movement to AGR and indeterminacy with regard to the features of AGR.

Stage II: An under-specified (i.e. a FP in which the properties are not assigned values) AgrP is projected. There is verb movement to AGR but there is no obligatory overt subject NP, raising to subject operations or subject-verb concordance.

Stage III: The AgrP is fully specified resulting in a cascade of observable phenomena in the ILG. Decisive and determinate judgements are given to all of the features of AGR tested; Kase, [+Number] and [+Person] agreement. The reorganisation of the L2 grammar is manifested in the rejection of null subjects and the rejection of the lack of subject-verb agreement.

Similar to the developmental pattern noted by Vainikka and Young-Scholten (1994), there are three stages in the development of a FC that is not activated in the L1. The acquisition sequence in the present study parallels that of L2 acquisition described by Vainikka and Young-Scholten (op.cit.) to the extent that an under specified Functional projection precedes the fully specified AgrP. However, unlike the L2 learners observed by Vainikka and Young-Scholten, these learners do not revert to a bare VP stage. The judgements given to sentences testing TNS and [+/- Past] tense in the ILG shows that TNS is present in the ILG from stage I.

It can also be observed that the free morpheme i.e. 'be' appears in the ILG prior to the affixes. This coincides both with the observations made by Vainikka and Young-Scholten (1994) on the acquisition of a FC in the L2 and with the observations made by Zobl and Liceras (1994) on reanalyzing the data from the morpheme acquisition studies from a functional parameterisation perspective. In both cases it is shown that in the acquisition of an L2, free morphemes precede affixes.

It was also seen that in the development of AGR, verb movement to AGR precedes the affixes as well as the expletive subject. This suggests that in the acquisition of AGR in English as an L2 by native speakers of Sinhalese, neither the affixes (Eubank 1992) nor expletive subjects (Hyams 1986, Hilles 1986) serve as the trigger. Vainikka and Young-Scholten claim that free morphemes act as 'triggers' in L2 acquisition of FC's (whereas affixes serve as triggers in L1 acquisition of FC's). Although in the present study the acquisition of the copula precedes the acquisition of the affixes, the data is insufficient to support or oppose the claim that free morphemes act as triggers in L2 acquisition of FC's.

A further observation that can be made on the projection of the Functional category AGR is that the specifier position appears after the identification of the head. That is,

in the development of the IL, NP movement to subject position and the presence of overt expletive subjects in [Spec, AgrP] position follow verb movement to the head of AGR°. Given the X-bar syntax, this pattern of development seems intuitively more plausible than for example if the specifier were filled before the head was identified.

9.2.2 The Development of TNS in the ILG

In the development of the ILG the changes to the L1 values to TNS are gradual and incremental. [+ Past] tense on copula verbs is recognized at level 1. Finite sentences without a [+TNS] marker and past tense sentences without the regular past inflection '*-ed*' are rejected at level 2. TNS is projected in complement sentences at level 3 and the irregular past tense form is also recognized at this level. The appropriately analysed [-TNS] marker as well as appropriate marking of non-past tense appear in the second language grammar at near-native level.

A three-stage sequence can be observed in the reassignment of values to TNS.

Stage I. TNS and its values are carried over from the L1 to the L2. Some aspects of TNS which are common to the L1 and the L2 are identified appropriately. Sentences which are grammatical according to the L1 values of TNS are judged to be acceptable despite their ungrammaticality in the L2 and subjects at this stage also misanalyse the L2 input in accordance with the L1 values of TNS.

Stage II. The values to the properties of TNS in the L2 grammar are in the process of being reassigned. There is a decrease in the determinacy with which a preference is expressed for sentences which are grammatical according to either the L1 or the L2 values of TNS. This reflects an indeterminacy in the underlying grammar with respect to the values assigned to the properties of TNS at this stage of development, an indeterminacy which can be attributed to restructuring. Although the intuitions with regard to the values assigned to TNS are indeterminate, the projection of TNS in complement sentences and the judgements given to [+ Past] tense indicate a) that the labeled maximal projection is retained from stage I and b) that the values of TNS which are identifiably similar in the L1 and L2 are also retained. It was also seen that lexical learning of the different overt manifestations of TNS of such properties increase (i.e. the different forms of past tense marking).

Stage III. A TNSP with values reassigned to those of the target language appears in the ILG. Subjects express a decisive preference for sentences in which the values to TNS match the L2 over sentences where the values of TNS match those of the L1.

Thus the reassignment of values to a FC already activated in the L1 too is a three stage sequence.

The developmental sequence observed has similarities as well as differences with respect to the sequence noted by Eubank (1992). In both cases there is a three-stage developmental sequence. At stage I learners transfer those FCs already activated in the L1 to the L2. However, unlike the first stage in the study by Eubank where the L1 provides learners with an unspecified labeled maximal projection, here the L1 provides the labeled, fully specified maximal projection, TNSP. The transfer of the L1 values of TNS leads to a misanalysis of the L2 data, a phenomenon not observed at stage 1 in the study by Eubank, (although it is noted that learners transfer the head direction of the FP from the L1 to the L2).

This study also shows an intermediate stage where the ILG grammar is being restructured. Learners at this stage do not express a strong preference for the L1 values of TNS (which are different from the L2) and neither do they express a significant preference for the L2 values. This is a stage not evidenced in the production data analysed by Eubank. The intermediate stage in this study is similar to the first stage in Eubank's study in that the labeled maximal projection transferred from the L1 is maintained in the ILG.

The third stage of a fully specified TNSP is similar in both studies.

As discussed the developmental pattern is gradual and cumulative with each of the properties of TNS being reassigned values at different stages in the ILG. The data also shows that prior to 'resetting' the values for non-past tense, the 3ps.sg. *-s* is extended to all persons in the non-past tense. This pattern of development suggests the application of the learning principles of overgeneralisation and pre-emption[5] (Pinker 1984) where it is assumed than in the learning of a language a particular structure may be extended through the lexicon to similar lexical items but that the hypothesis is discarded when there is no evidence in the input to substantiate it.

[5] See section 3.3.2 of Chapter three for a discussion of the learnability principles of Generalization and Pre-emption.

9.2.3 AGR vs. TNS

There are similarities as well as differences in the development of the two types of functional categories (i.e. the FC that needs activating in the L2 and the FC that needs 'resetting'). Three distinct stages can be observed in the development of both types of FCs. However, as noted previously, the three stages in the development of activating the new category, AGR do not coincide with the three stages in the reassignment of values to the existing FC, TNS.

The initial stage in the development of AGR is characterised by the absence of AgrP while the initial stage in the development of TNS shows a fully specified functional projection. The intermediate stage of AGR shows an underspecified maximal projection. The parallel stage in the development of TNS indicates a maximal projection with the values in the process of being reassigned. The intermediate stages in the development of the two FCs are similar in that although the maximal projection exists the ILG is characterised by indeterminacy with regard to the values of the FCs. In AGR the indeterminacy is caused by the attempt to determine the values assigned to the properties of the FC in the L2, in TNS the indeterminacy is a result of the attempt to reassign values to the properties. The third stage is similar in that the ILG projects fully specified AgrP and TNSP with values approximating those of the L2.

The development of the FCs in relation to one another in time can be described as follows. The first and second stages in the development of AGR coincide with the first stage in the development of TNS. That is, during the time the ILG proceeds from having no AGR projection to an underspecified AgrP, there is a fully specified TNS with values similar to the L1. The third stage in the development of AGR corresponds to the second stage in the development of TNS. That is, at the stage when all of the features of AGR appear in the ILG , the values to TNS are still being reassigned. The appearance of TNSP with values similar to those of English takes place subsequently.

In addition to the differences already noted, the shape of the path of development of the two FCs also differs. The development of AGR can be characterised as discontinuous in that the reorganisation of the underlying grammar with the instantiation of AGR at level 2 results in a cascade of changes at level 3. The change in the ILG resulting from the reassignment of values to the properties of TNS is more gradual. Learners transfer TNS and its properties from the L1 to the L2 and each of the features which are different from the L1 are reanalyzed at different stages in the

ILG in isolation from the other features. The features appear in an item-by-item fashion. Since the TNS projection itself is present in the ILG from the initial stages, the acquisition of the overt manifestations of TNS can be seen as lexical learning. Given that lexical items as opposed to the syntax must be *learned* (Schwartz 1993) via the inductive learning mechanism, this pattern of development is plausible. Thus, in the development of TNS the interaction between L1 values, learning principles and the L2 input cannot be ruled out.

Thus, although the development of the FC that needs to be activated in the L2 grammar and the FC whose values have to be changed take place side-by-side in the ILG, each follows a different developmental sequence (in terms of time) as well as a different developmental path.

Further, there also appear to be differences in the mechanisms which guide the acquisition of the different types of FC. In the acquisition of AGR, the two stages of acquisition: the underspecified FP followed by the fully specified AgrP, is similar to the sequence noted by Vainikka and Young-Scholten (1994) in the acquisition of a new FC, AGR, in the L2 by Korean learners of German.[6] Uniformity in the stages of acquisition is a primary argument put forward for the existence of a language specific module in language acquisition. Further, the simultaneous appearance of all of the features of AGR in the ILG at level 3 is consistent with parameter setting, a phenomenon associated with UG. Therefore, it can be argued that the acquisition of AGR and thereby the activation of a FC not activated in the learners L1 is guided by UG.

On the other hand, the development of TNS is more gradual and incremental, with properties of TNS being reanalysed at different stages in the IL continuum. This is a developmental sequence more consistent with the general learning mechanisms than with parameter resetting.[7] The data also shows that learning principles such as Generalization and Preemption interact with the L1 values of TNS and the L2 input. Conversely, as seen, there are also some similarities in the sequences of acquisition of TNS in the present study and the resetting of values to AGR in German as an L2 by a native speaker of Spanish, in the study carried out by Eubank (1992)[8], therefore UG cannot be ruled out. Thus the evidence from the acquisition of TNS and by extension,

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[6] The study by Vainikka and Young-Scholten (1994) is reviewed in detail in section 3.2.2.4.1. of Chapter three.

[7] See Chapter three, section 3. 2.2.1. for a discussion of the link between developmental patterns and the mechanisms that guide development.

[8] The study carried out by Eubank (1992) is discussed in 3.2.2.4.3. of Chapter three.

the development of FC's already activated in the learners L1 with different values, does not allow us to conclude unequivocally that the acquisition is either guided purely by UG or that it is a process of interaction between L1 parameters, L2 input and learning principles.

9.3 The Significance for Learnability

The relationship between the parameter settings of the L1 and the L2 with regard to the Morphological Uniformity Parameter was identified (in section 4.5.5) as being a movement from a less marked to a more marked value. The arguments from acquisition theory claim that it is easier for learners to move from an unmared to a marked value of a parameter. This claim is supported in the transition made by Sinhalese learners of English who reset the MUP from [+MU] to [-MU].

The L1 and the L2 settings of the pro-drop parameter on the other hand requires learners to move from a marked [+PD] grammar to an unmarked [-PD] grammar. In second language acquisition theory it is argued that reverting from a more marked setting to a less is more difficult. As noted in section 7.3, although the L1 values are changed, the underlying grammar at near-native level is divergent with regard to pro-drop in that near-native speakers find the absence of null referential subjects less unacceptable than native speakers.

Researchers in second language acquisition have also claimed that when L1 and L2 parameter values are not in a marked/unmarked relationship, on the basis of positive evidence[9], learners are able to replace rule 'X' with rule 'Y'. However, the evidence from the present study shows that although L2 learners replace the m-selectional properties of the [-TNS] marker from 'affixal' in the L1 to 'free' in the L2, the underlying grammar at near-native level does not approximate that of native speakers.

The following observations can be made with regard to the role of PLD in the acquisition of AGR and TNS in English by Sinhalese learners. Sinhalese learners fail to make use of the expletive subject NP, which in L1 acquisition is considered to be the trigger that sets the value to the [Pro-drop] parameter, to 'reset' from a [+Pro-drop] to a wholly [-Pro-drop] grammar that does not permit null subjects under any circumstances. This can be viewed as an instance of PLD which is sufficient to set L1 parameters being insufficient to enable the recovery from a larger grammar to a

[9] This issue was discussed in detail in the section 3.2.3.A of Chapter three.

smaller grammar.[10] Moreover, as discussed in section 9.1.1.1, according to the recent analysis of the pro-drop parameter (Hyams 1994), the PLD in English confirms rather than contradicts the L1 induced misparse that English permits 'topic drop'. Contrary to the claim by Eubank (1992) the data from Sinhalese learners also show that 'affixes' do not serve as 'triggers' for the FC AGR.

The data indicates that Sinhalese L1 speakers activate a FC in the L2 that is not activated in their L1. This suggests that L2 learners too have access to the 'UG Lexicon'. Hence, the evidence from this study supports the continuity hypothesis on the development of functional categories. If the 'UG Lexicon' were subject to maturation as maintained in the maturation hypothesis (Radford 1990, Tsimpli and Smith 1991, Tsimpli and Rousseau 1991), then learners would not be able to activate FCs not already activated in their L1 in non-primary language acquisition. Therefore, our data appears to indicate that FC's are available at all stages of language acquisition (Hyams 1994, Pinker 1984) and that development takes place as a result of the acquisition of lexical elements and values associated with these elements .

9.4 New Perspectives

9.4.1 IL Development

As seen in the development of AGR (section 9.2.1 of this chapter), when activating a FC not activated in the L1, there is a delay between the projection of the FC and the overt manifestation of its features. This suggests that even though the creation or instantiation of a FC may depend on the 'identification' of the overt manifestations of the FC, it does not depend on their 'realisation'. 'Realisation' follows once the FC is instantiated (Demuth 1992). Therefore in L2 acquisition too, as in L1 acquisition the emergence of a FC takes place once the head is identified, though not phonetically realised (Vainikka and Young-Scholten 1994). As discussed the data also shows that [Spec, AgrP] is filled at a stage subsequent to verb movement to AGR° which suggests that the specifier position appears in the grammar after the head has been identified.

The sequence of development as well as the shape of the path of development of the functional category that needs to be activated in the ILG is different from the

[10] See section 3.4.2 of Chapter three for a discussion of the role of PLD in L2 acquisition.

development of the FC in which the values have to be reset. The three stages in the acquisition of AGR are

(1) no AGR→underspecified AGR→fully specified AgrP(L2).

The development of TNS follows a sequence of

(2) a fully specified TNSP(L1)→underspecified TNSP→fully specified TNSP(L2).

A comparison of the development of AGR and TNS (section 9.2.3) showed that although the development of the FCs takes place simultaneously in the ILG, the developmental sequences do not coincide. The underspecified TNSP coincides with the fully specified AgrP. Therefore, the FC to which the values need reassigning in the L2 appears after the FC that needs to be activated in IL development. The shape of the path of development of the two FCs also differs. The pattern followed in the acquisition of AGR is discontinuous while the development of TNS is more gradual and incremental.

The way a particular aspect of the L2 grammar is represented in the second language grammar at ultimate attainment is affected by its pattern of development in the intermediate stages. Aspects which are initially misanalysed, e.g. the [-TNS] marker '*to*', the 3ps.sg affix and therefore subject-verb concordance in sentences with thematic verbs, are more likely to be represented differently in the underlying grammar at ultimate attainment than aspects which are correctly analysed from the beginning.

9.4.2 Ultimate Attainment

The evidence from this study concurs with the findings from previous studies (Coppieters 1987, Sorace 1988, 1991a) in that the near-native grammar does not accord with the native grammar with respect to the whole of the TL. In this case, the non-native knowledge representation in the areas that differ from native speakers is divergent rather than incomplete.

The divergence between native and near-native grammars is manifested in hierarchies of acceptability. Near-native speakers perceive hierarchies in the acceptability of particular ungrammatical features that native speakers do not. For example, in the near-native grammar a null referential subject in sentences with thematic verbs is less

unacceptable than a null subject in any other environment. Native speakers on the other hand do not make a distinction between the different subjects or the different environments.

As seen in sections 7.3 and 8.3 the aspects of the grammar which are likely to be 'divergent' are those that require a change in the L1 values and those with respect to which the L2 input interacts with the L1 parameters leading to an initial misanalysis. Although the ILG grammar recovers from the misanalysis, the underlying grammar at near-native level does not approximate that of native speakers on these aspects.

In aspects where L1 parameters do not interact with the L2 data, second language learners achieve a knowledge representation similar to that of native speakers of English. In other words, the nature of the underlying grammar at ultimate attainment is affected by two factors: the relationship between the L1 and the L2 parameter settings and the nature of the PLD. Thus, the approximation of native grammar with regard to a particular aspect of the L2 grammar, depends on the primary language data and the values assigned to the particular parameter in the L1 and the L2 in question.

In conclusion the evidence from this study has enabled us to reject the null hypotheses (section 5.1.2): the two hypotheses on the knowledge representation of FCs at ultimate attainment in the L2 as well as the two hypotheses on the development of FCs in the ILG.

9.5 Accessibility to the UG Lexicon

It was said in the introduction to this study that in order to claim that L2 learners have access to the parameterised aspects of UG (i.e. the UG lexicon) it is necessary to provide evidence that the L2 learners have knowledge that they could not have come by via the L1 or through the interaction of the L2 input with general learning mechanisms and learning principles.

The determinate and consistent judgements given by the subjects at near-native level to sentences testing the different aspects of AGR indicate that native speakers of Sinhalese activate AGR in English as a second language. Sinhala does not instantiate AGR, hence its presence in the L2 grammar cannot be attributed to transfer. Further, the pattern of development where the instantiation of the FP is followed by the simultaneous assignment of values to its features suggest that the features of AGR are

not learned in a piece-meal fashion but are linked to the AGR projection. Thus the developmental pattern is more consistent with parameter resetting than inductive learning mechanisms. It was also argued that although the underlying grammar at near-native level is divergent with regard to the Kase feature of AGR, the grammar is one which is permitted in UG. In addition to this there are also similarities in the developmental sequences observed in the present study and other studies (Vainikka and Young-Scholten 1994) which look at the instantiation of a functional category in the L2. Uniformity in the developmental sequences is a premise on which the argument for the availability of a language specific module is based, in both L1 and L2 acquisition research. Moreover, as discussed (in section 4.7.2), given the ability of adverbs in English to appear in a variety of different positions and the absence of explicit positive evidence in the input for verb movement to AGR over the ADV, the rejection of sentences without verb movement to AGR by these learners suggest that they have access to abstract knowledge which cannot be attributed solely to classroom input. Thus, the nature of the knowledge at ultimate attainment, which is divergent[+UG], and its development strongly suggest that it is UG rather than the general learning mechanisms that guide the acquisition of AGR in English. Consequently, based on the acquisition sequences observed in the development of AGR and nature of near-native competence and we propose that the UG lexicon is available in L2 acquisition.

In the case of the Functional category TNS which is activated in the learners L1 as well as the L2 but with different properties the judgements given by subjects at near-native level show that native speakers of Sinhalese do not retain the L1 values of TNS in ESL. The developmental pattern shows that learners initially transfer both the FC and its properties from the L1. The properties that are different in the L2 are then reanalysed with increasing proficiency in English. The development is gradual and incremental except in the case of the [+TNS] marker 'will' which has similar values in the L1 and the L2. Here the development shows a 'U' shaped curve. The developmental pattern also shows that the properties are assigned values individually, at different stages in the IL continuum. The fact that the features of TNS are reanalysed in isolation from one another prevents us from concluding that inductive mechanisms do *not* play a role in the changing of the values to TNS in the L2. On the other hand, the indeterminacy at the second stage of development with regard to the properties of TNS suggest a restructuring of the L2 grammar in accordance with the new L2 values. Further, there are some similarities in the acquisition sequences of TNS in the present study and other studies investigating the 'resetting' of values

(Eubank 1992). Thus, we cannot preclude the language specific module either. We propose that since TNSP is present in the IL grammar from the initial stage the acquisition of TNS does not entail syntactic learning, rather, the acquisition of the features of TNS entails lexical learning. In instances where the values of TNS in the L2 differ from those of the L1, the learner has to reanalyse the overt manifestations which in turn leads to a restructuring in the rest of the grammar. We propose therefore, that in the acquisition of TNS, lexical learning which leads to computing the deductive consequences for the grammar of the changes in properties of the functional heads could be the cause of the delay in the 'resetting' of the parameters as opposed to the 'activation' of a new functional head.

To conclude, the evidence from the acquisition of AGR in English by Sinhalese learners of English has shown us that L2 learners can 'activate' functional categories not activated in their L1, and therefore by implication, that L2 learners have access to the UG lexicon. The development of TNS in the L2 has shown us that in the case of FC's activated in the L1 and the L2, learners carry over the FC and the values assigned to it in the L1 to the L2, hence, initially access the L2 data via the L1 parameter values. The evidence also shows that the L1 values are subsequently changed. That is, learners at advanced levels of proficiency do not retain the L1 values of TNS. In both cases, the knowledge representation at ultimate attainment matches that of native speakers in some aspects, but is divergent in others. The aspects which are represented differently are aspects which are misanalysed in early ILG. A comparison of the development of AGR and TNS in the ILG of native speakers of Sinhalese has shown us that the acquisition of the two types of FCs takes place according to a different time frame, that they follow different developmental patterns and may even be guided by different learning mechanisms.

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Appendix A.1 : General Instructions on acceptability judgements. (English translation)

INSTRUCTIONS - Acceptability Judgements

1. This is an experiment to find out how a second language is represented in our minds. Since the second language we learn is English, I would like your opinion on the sentences I am about to show you. There are no 'correct' or 'wrong' answers , whatever opinion you express will be useful and interesting.

2. I want you to decide whether the sentences are 'possible' sentences in English. That is, what you intuitively 'feel' about the sentence rather than 'correct' according to the 'grammar rule'. For example, the following sentence

   "The rat that the cat that the dog chased ate died"

   is 'correct' according to the grammar rules of English, but no one would consider it **acceptable** because it is intuitively not possible.

   On the other hand

   " The talking about the problem saved her" or,

   " I didn't believe it , although Sid asserted that Max left".

   might not be 'grammatical' according to the rules of grammar but are acceptable because that is the way we speak. I am interested in the spoken language and not the written.

3. A sentence at a time will be shown to you and you will also hear the same sentence on the tape. You will have a few seconds to decide. I am interested in your SPONTANEOUS impression of the sentence, so please don't change your answer once you have decided.

4. Some sentences may sound strange and each of you will have a different opinion. So please don't copy from someone else for if you do it will spoil the experiment.

5. It is also important that you answer ALL the questions. So please don't leave any out. Remember to write only one answer to one question.

6. Please do NOT write your names.

7. Thank you very much for helping me with my research

උපදෙස් :

1. මෙය මිනිස් සිතේ දෙවන බසක් සටහන් වෙලා තිබෙන ආකාරය පිළිබඳ පරීක්ෂණයකි. අප දන්නා දෙවන බස ඉංග්‍රීසි බැවින්, ඔබගේ සහාය ඇතිව මේ පරීක්ෂණයෙන් හඳුරන්නට යෙදෙන්නේ ඉංග්‍රීසි භාෂාව අපේ සිතේ ඇඳී තිබෙන ආකාරයයි.

2. මම ඔබට ඉංග්‍රීසි වාක්‍ය කණ්ඩයක් පෙන්වනවා. ඔබ කළ යුත්තේ එම වාක්‍යයන් පිළිබඳ ඔබට දැනෙන අදහස සටහන් කිරීමයි. 'දැනෙන' යනු ඒ වාක්‍යය ඉංග්‍රීසියෙන් ස්වාභාවිකව 'කියහැකි' වාක්‍යයක්ද යන්න තීරණය කිරීමයි. මෙම වාක්‍යයන්ට 'හරි' හෝ 'වැරදි' උත්තර නැත. ඔබට දැනෙන ඕනෑම අදහසක් මගේ කාර්යයට ප්‍රයෝජනවත් වේ.

3. උදාහරණයක් වශයෙන් :-

   a. " මම අමාත්‍ය මණ්ඩලය පිරිවරා සිංහාසනාරූඪව උන්නේ මිම් මේ තමාගේ බැම රැළියෙන් වැසී තිබෙන්නාවූ ඇවි කුකුළන් ඇස් මෙන් ඉතා රත්වූ ඇසින් බැමියා නගාලා කිපී බලන එකකු මෙන් එක්වන් මා මුහුණ බලන්නේය, සීතෙන් දුවුවන් බාන තරම් මොහු ගේ රූප විලාසය හා කඩදත් හා මුහුණ හා රත්වූ ඇස් ඇති මොහු රාක්ෂයකු දුවුවා සේ ඉතා භය පත්ව දක්නා සේ යයි සිතමි."

   b. " The rat that the cat that the dog chased ate died "

   යන වාක්‍යයන්ට සිංහල සහ ඉංග්‍රීසි ව්‍යාකරණ රීතියනට අනුව 'හරි' වුවත් 'කියහැකි' වාක්‍යයන් නොවේ. අනෙක් අතට,

   c. " එයා මේ මාසේ අන්තිමේදී කතරගම යන කතාවක් මාත් එක්ක කීවා. "

   d. " The talking about the problem saved her "

   යන වාක්‍යයන් ව්‍යාකරණානුකූලව 'හරි' නුනත් 'කියහැකි' වාක්‍යයන් වන්නේ එය අපි නිතර භාවිතා කරන භාෂාවට සමාන නිසාය. එම නිසා මෙම පරීක්ෂණයට අවශ්‍ය වන්නේ ලියන භාෂාවෙන් පමණක් 'හරි' හෝ ව්‍යාකරණ නීතියට අනුව පමණක් 'හරි' වාක්‍යයෙන් නොව එදිනෙදා කතා කරන භාෂාවේද 'හරි' යයි හැඟෙන වාක්‍යයන්ය.

4. ඔබට වරකට එක වාක්‍ය බැගින් දකින්නට ලැබෙන අතර ඒ සමහම එම වාක්‍යයම වේප් එකෙන් ඇහෙන්නට ලැබෙනවා ඇත. ඔබට වාක්‍යයක් ඇහෙන / පෙනෙන විටම හිතට දැනෙන අදහස (Spontaneous impression) ඉතා වැදගත්ය. එම නිසා කරුණාකර මුලින්ම සටහන් කළ අදහස පසුව වෙනස් කරන්න එපා.

5. සමහර වාක්‍යයන්ගේ 'නුහුරු' අමුතු ගතියක් දැනෙන්නට පිළිවන. එවැනි වාක්‍යයන් පිළිබඳ අදහස් පුද්ගලයාගෙන් පුද්ගලයාට වෙනස් වන බැවින් තමුන්ට හිතෙන අදහස මිස වෙනත් කෙනෙකුගෙන් බලාගෙන ලියන්න එපා.

6. සෑම වාක්‍යයක් පිළිබඳවම ඔබගේ අදහස දක්වීම වැදගත්ය. එම නිසා වාක්‍යයන් අතහරින්න එපා.
   එක වාක්‍යයකට එක උත්තරයක් පමණක් සටහන් කරන්න.

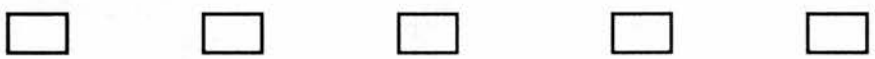
7. කරුණාකර ඔබගේ නම ලියන්න එපා.

8. මගේ පරීක්ෂණයට ඔබ දෙන සහයෝගයට මම ඉතා ස්තුතිවන්ත වෙමි.

Appendix A.1.1 Instructions for the Rating task. (English translation)

TASK: **RATING**

1. In this task you have to indicate your opinion of the sentence by putting a cross in the box you want. The boxes are numbered according to a scale of acceptability



1	2	3	4	5
totally unacceptable				totally acceptable

2. If you think a sentence is totally acceptable you should put a cross in box 5. If you think a sentence is totally unacceptable you should put a cross in box 1. If you feel that it is in between you can cross 2, 3 or 4 depending on how acceptable you think the sentence is.
3. This task has 70 sentences and should take approximately 15 minutes.

PUT A CROSS IN THE RELEVANT BOX.

sample answer script

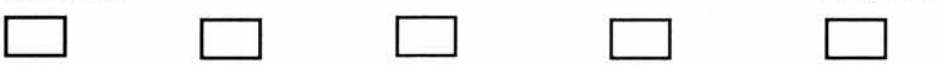
1.

1	2	3	4	5
totally unacceptable				totally acceptable

2.

1	2	3	4	5
totally unacceptable				totally acceptable

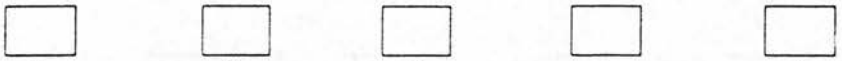
3.



1	2	3	4	5
totally unacceptable				totally acceptable

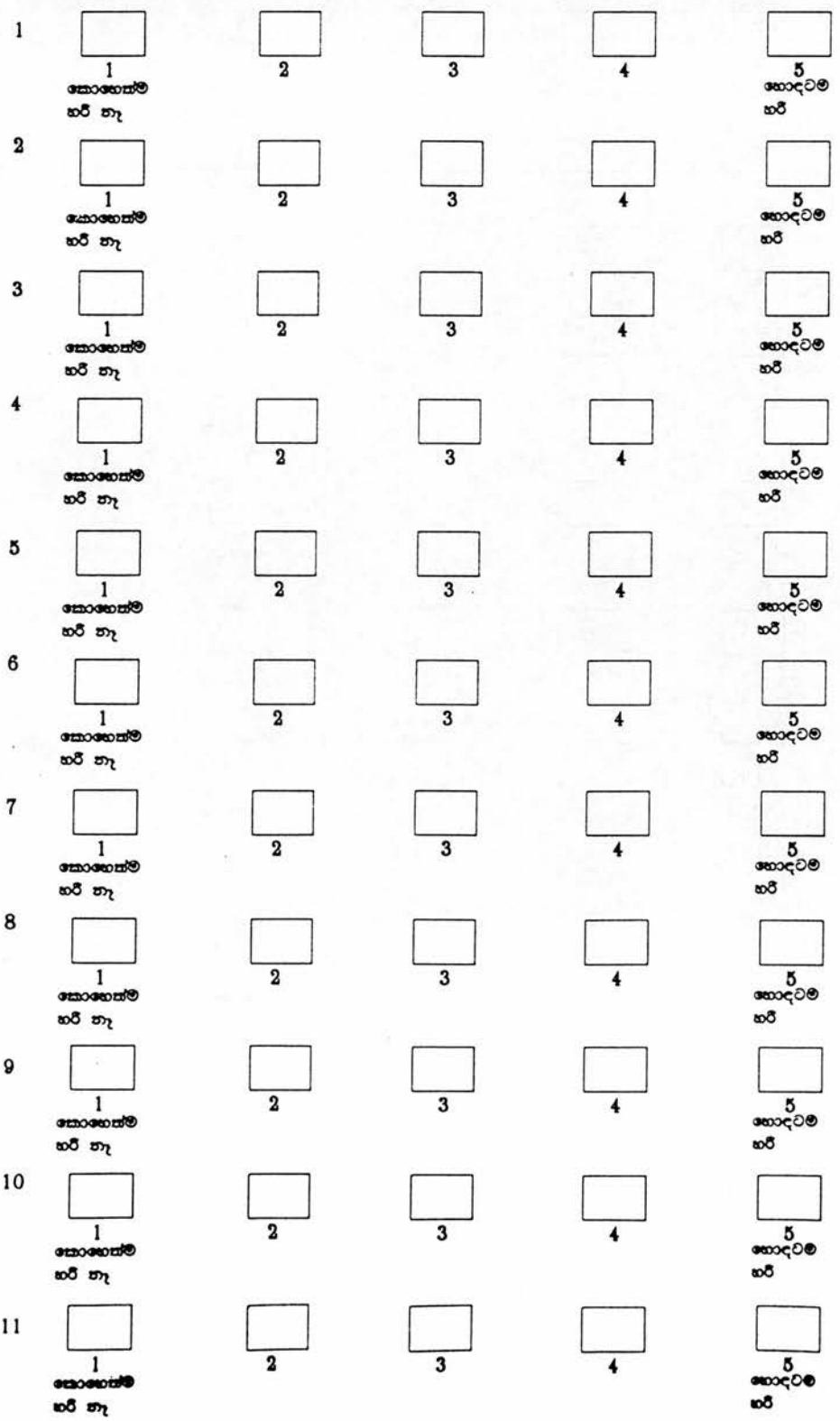
අනුපාතය දැක්වීම:- **Rating Task**

මෙහිදී ඔබ කළයුත්තේ වාක්‍ය පිළිබඳ ඔබේ අදහස කතිරයකින් පහත දැක්වෙන කොටුවක ලකුණු කිරීමයි. කොටු 1 සිට 5 දක්වා අනුපාතිකව (Scale) දක්වා ඇත.



වාක්‍යයක් හොඳටම ' හරි ' යයි හිතේ නම් නොමිමර 5 කොටුවට කතිරයක් දමන්න. වාක්‍යයක් කොහෙත්ම කිය නොහැකි යයි සිතේ නම් 1 කොටුවට කතිරයක් දමන්න. අතරමැදි 'කියහැකි' තත්ත්වයක් වාක්‍යයකට ඇත්නම් දෙවෙනි, තුන්වෙනි හෝ හතරවෙනි කොටුවට කතිරයක් දමන්න. ඔබට වතාවකට එක වාක්‍යය බැගින් අසන්නට හා දකින්නට ලැබෙයි. කරුණාකර වේප් එකේ වේගය අනුව වාක්‍යයන්ට කතිර දමන්න. (එක වාක්‍යයකට තත්පර 5 කට වැඩිය ගත කරන්න එපා.)

සුදුසු කොටුවට කතිරයක් දමන්න.



Appendix A.1.2 : Instructions for the Magnitude Estimation task. (English translation)

TASK: **Magnitude Estimation**

1. In this task what you have to do is to assign numbers to sentences in proportion to how acceptable you think they are. That is give the first sentence you see ANY NUMBER you wish. Then assign the successive sentences numbers depending on how acceptable you think they are in proportion to the first.

This is not easy, so we will do some examples.

Example 1. We will practice by estimating the length of lines in proportion to one another.

First, look at the lines below:

(1) ---------- ☐

(2) ---------- ☐

(3) ---------- ☐

Think of a number to represent the length of line 1. Any number will do. Write it in the box.

How long do you think line to is in proportion to the first? twice as long? then multiply the number you gave line one by two and write it in the box

Now, How long do you think line 3 is in proportion to the first? half? one third? Then assign a number that is half/ one third of the number assigned to line 1.

Example 2. We can estimate the acceptability of sentences in the same way by assigning numbers on how acceptable you think they are in proportion to the first sentence.

Look at sentence 1

(1) 'The cat sat on the mat ' ☐

Do you think it is acceptable? - Assign this sentence any number you like. Now look at sentence 2

(2) 'The cat the dog chased' ☐

Is this more acceptable or less acceptable than the first? Now look at sentence 3.

(3) ' Mat the on sat cat the' ☐

How acceptable is this in proportion to the first sentence? In proportion to the second sentence?

2. As you can see there are degrees of acceptability. What you have to do is to assign numbers depending on how acceptable you think sentences 2 and 3 are in proportion to the first. If you think sentence 2 is half as acceptable as sentence 1, then assign half the amount you gave sentence 1. If you think sentence 3 is 1/4 or 1/3 as acceptable as sentence 1 then assign one fourth or 1/3 the amount given to sentence 1.

Remember: the more acceptable the sentence is, the higher the number.

3. You will both see and hear one sentence at a time. Please keep to the speed dictated by the tape.

4. There are 70 sentences here and should take approximately 15 minutes.

WRITE THE NUMBER IN THE RELEVANT BOX.

sample answer script

1. ☐
2. ☐
3. ☐
4. ☐
5. ☐

etc.,

වටිනාකම දැක්වීම / ශ්‍රේණිගත කිරීම – **Ranking**

මෙහිදී ඔබට කරන්නට තිබෙන්නේ වාක්‍යයන් ස්වභාවිකව 'කියහැකි' 'කියනොහැකි' භාවය අනුව ලකුණු දීමයි. ඔබට ඇහෙන පළමුවන වාක්‍යයට ඔබ කැමති ඕනෑම ලකුණක් / ගණනක් දෙන්න. ඉන්පසු ඇසෙන වාක්‍යයන්ට පළමුවෙනි වාක්‍යයට දුන් ලකුණ අනුව ලකුණු දෙන්න.

උදාහරණ 1.

වාක්‍යයන් සමඟ උදාහරණයක් බලන්නට පෙර අපි පහත දැක්වෙන ඉරිවල දිග අනුව ලකුණු දෙමු.

(1) ..... ☐

(2) ..... ☐

(3) ..... ☐

පළමුවෙනි ඉරට ඔබ කැමති ඕනෑම ලකුණක් සිතාගන්න. එය දී ඇති කොටුවේ සටහන් කරන්න. දැන් දෙවෙනි ඉර දෙස බලන්න. එය පළවෙනි ඉර මෙන් කොතරම් දිගද ? දෙගුණයක් පමණ ?. එසේ නම් පළමුවෙනි ඉරට දුන් ලකුණු මෙන් දෙගුණයක් ලකුණු දෙන්න. (උදා : පළමුවෙනි ඉරට ලකුණු 10 ක් දුන්නා නම් දෙවැනි ඉරට ලකුණු 20 ක් දෙන්න.)

දැන් තුන්වෙනි ඉර දෙස බලන්න. එය පළවෙනි ඉර මෙන් කොතරම් දිගද ? බාගයක් පමණ ? තුනෙන් දෙකක් පමණ? (භාගයක් යයි සිතේ නම් 5 ක් දෙන්න. තුනෙන් දෙකක් පමණ යයි සිතේ නම් 6.6 ක් දෙන්න).

උදාහරණ 2.

මේ ආකාරයෙන් අපට වාක්‍යයන්ගේ 'කියහැකි' 'කිය නොහැකි' භාවයටද ලකුණු දීමට පුළුවන.

පළමුවෙනි වාක්‍යය දෙස බලන්න.

(1) The cat sat on the mat. ☐

මේ වාක්‍යය ඔබට සිතෙන ආකාරයට 'කියහැකි' වාක්‍යයක්ද ? මෙයට ඔබ කැමති ඕනෑම ලකුණක් දෙන්න.

දැන් දෙවන වාක්‍යය දෙස බලන්න.

(2) The cat the dog chased. ☐

මෙය පළමුවෙනි වාක්‍යයට වැඩියෙන් 'හරි' ද? අඩුවෙන් 'හරි' ද පළවෙනි වාක්‍යය මෙන් භාගයක් පමණ 'හරි' වගේ නම්, ඊට දුන් ලකුණු ප්‍රමාණයෙන් භාගයක් ලකුණු දෙන්න. දැන් ඊළඟ වාක්‍යය දෙස බලන්න.

(3) Mat the on cat the sat. ☐

පළමුවෙනි වාක්‍යය මිම්මක් වශයෙන් ගතහොත් මේ වාක්‍යයට ලකුණු කීයක් දිය හැකිද ?

පළමුවෙනි, දෙවෙනි හා තුන්වෙනි වාක්‍ය දෙස බලන විට 'කියහැකි' හෝ 'හරි' භාවයේ වෙනස් මට්ටම් ඇති බව ඔබට වැටහෙනවා ඇති. එම නිසා මෙහිදී ඔබ කළයුත්තේ පළමුවෙනි වාක්‍යයයෙහි 'කියහැකි' භාවය මිම්මක් වශයෙන් ගෙන අනෙක් වාක්‍යයන්ට ලකුණු දීමයි. (පළමුවෙනි වාක්‍යයට වැඩියෙන් හරි නම් වැඩියෙන් ලකුණු දෙන්න. අඩුවෙන් 'හරි' නම් අඩුවෙන් ලකුණු දෙන්න.)

ඔබට එකාවකට එක වාක්‍යය බැගින් ඇසෙන්නට සහ දකින්නට ලැබෙයි. කරුණාකර වේප් එකේ වේගය අනුව ලකුණු දෙන්න. (එක වාක්‍යයකට තත්පර 5 කට වැඩිය ගත කරන්න එපා.)

Appendix A.2 **CLOZE TEST**

Instructions:

Write the missing word in each space. The size of the space gives an indication of how long the missing word is.

(A)

What are our cities gong to be like in ten years, or twenty? Are we going to build enormous roads across them? Or are (1)-------- going to leave our cars outside the cities and travel by (2) -------- or train in the cities? With big motorways across them, full (3)-- noisy, dirty cars and lorries, our cities are going to be (4)------- places!. But people want to travel in the cities, and some of them say: " These buses and trains are dirty and slow, (5) ------- they cost a lot of money. I want to use my (6) --------". This is the problem, How can we solve it? There are (7) --------- good ideas. In 1971, for example, the authorities in Rome began an (8)---------- experiment: passengers on the city buses did not have to pay for their tickets and there were no tickets! They travelled on the (9) --------- for nothing. So many people left their cars at home and (10)--------- the buses. This was a very good thing.

(B)

An interesting traffic experiment was tried out in Stockholm. People paid a little money for a season ticket (1) ------- travel on any bus, train or tram all over the city for a month. Many people in Stockholm left (2) ------- cars at home. In many cities now some streets (3) ------- closed to vehicles. Cars and buses do not use (4) ------- and pedestrians are safe there. They walk in the (5) -------, drink coffee at the cafes on the pavements and (6) ------- life. In London there is another experiment: part of (7) ---------- street is only for buses, so the buses travel (8) ------- . There are no cars or taxis in front of (9) -------. These are some of the ideas for the future (10) ------- transport in our cities.

Write in the missing word in each space. The first letter of each word is given.

(C)

The emotional development o_____ an infant starts at t___ beginning of his life. I____ w___ are t_____ judge the way i___ which a human being deals w_____ h____ fellow creatures, and see h___ h__ builds up h____ personality and life, we cannot afford t___ leave out what happens i___ the earliest years, months, a_____ even weeks a___ days of his life.

Fill in each blank with a suitable word.

(D)

The railway engine stood in the station for the (1) _____ time in many years. Smoke and (2) _____ came from the funnel and (3) _____ was a cloud of steam (4) _____ the wheels; inside the cab the fire (5) _____ fiercely. Behind the engine (6) _____ five wagons and one carriage (7) _____ had also been in the (8) _____. Kingsly pulled the whistle and (9) _____ off the brake. Slowly the (10) _____ began to turn and the train moved forward.

Answers:

Passage A		Passage B	
1.	we	*1.*	to
2.	bus/coach	*2.*	their
3.	of	*3.*	are
4.	noisy/dirty/pollute	*4.*	them
5.	and/though	*5.*	roads
6.	car/vehicle	*6.*	enjoy
7.	many/other	*7.*	the
8.	interesting	*8.*	there/slowly/fast/unhampered/undisturbed
9.	bus	*9.*	them
10.	used	10.	of

Passage C

1. of
2. the
3. if
4. we
5. to
6. in
7. with
8. his
9. how
10 he
11. his
12. to
13. in
14. and
15. and

Passage D

1. first/last
2. steam/soot/sparks/gas/vapour
3. there
4. round/around/near
5. burnt/burned/balzed/glowed
6. stood/were
7. which/that
8. shed/yard/scrapyard
9. took/let/leased
10. wheels/engine

Appendix A.2.1 **BACKGROUND INFORMATION** (English translation)

SECTION A: (Please tick the appropriate box)

1. Male ☐

   Female ☐

2. Age 18 - 30 ☐

   31 - 40 ☐

   41 - 50 ☐

   51 and above ☐

3. Mother Tongue Sinhala ☐

   Tamil ☐

4. Current Employment Status

   Working ☐

   Non-working ☐

SECTION B: (Please complete the following)

1. If you are working a) where ----------

   b) in what capacity ----------

2. How old were you when you first learned English ----------

3. The English course you are attending at present----------

   Group No ☐ Centre ----------

4. Highest examination passed in English

   OL/AL/Diploma/Graduate or equivalent etc.,. ----------

5. Highest Examination taken e.g. OL/AL/GAQ/BA part I etc.,

6. Do you know any language/s other than these two? Yes/No

   If yes, please state what they are ----------

A. කරුණාකර සුදුසු කොටුවට කතිරයක් දමන්න.

1. ස්ත්‍රී ☐

   පුරුෂ ☐

2. වයස 18 – 30 ☐

   31 – 40 ☐

   41 – 50 ☐

   51 හෝ වැඩි ☐

3. මවු බස සිංහල ☐

   දෙමළ ☐

B. කරුණාකර පහත දැක්වෙන ප්‍රශ්න වලට පිළිතුරු සපයන්න.

1. ඔබ රැකියාවක් කරනවා නම් රැකියාව කුමක්ද ? .....

   .....

2. ඔබ පළමුවෙන්ම ඉංග්‍රීසි ඉගෙනගන්නා විට වයස අවුරුදු : .....

3. ඔබ දැනට සිටින ඉංග්‍රීසි පන්තිය : .....

   පාඨමාලාව ආරම්භ කරන විට සිටි පන්තිය(Group No) : .....

4. ඉංග්‍රීසි මාධ්‍යයෙන් කරන ලද උසස්ම විභාගය : O/L, A/L, උපාධි/ .....

   .....

5. ඉංග්‍රීසි සහ සිංහල භාෂාවට අමතරව ඔබ වෙනත් භාෂාවන් දන්නවාද ? .....

   ඒ මොනවාද ? .....

Appendix A.3: **Test Sentences**

Version A

Sent. type	No	T	
(a)i	1	1	John is carefully reading the book.
		2	Sumana is definitely coming to the party.
	2	1	John carefully is reading the book.
		2	Sumana definitely is coming to the party.
(a)ii	3	1	The girls who play netball for Sri Lanka are very tall.
		2	The women in the blue saris are the singers from 'Maname'.
	4	1	The girls who play netball for Sri Lanka is very tall.
		2	The women in the blue saris is the singers from 'Maname'.
	5	1	The girls who play netball for Sri Lanka be very tall.
		2	The women in the blue saris be the singers from 'Maname'.
	6	1	The girls who play netball for Sri Lanka very tall.
		2	The women in the blue saris the singers from 'Maname'.
(b)i	7	1	John's brother is very greedy, he eats like a pig.
		2	Mrs. Silva is very religious. She goes to church every Sunday.
	8	1	John's brother is very greedy, eats like a pig.
		2	Mrs. Silva is very religious. Goes to church every Sunday.
	9	1	Sarath has joined the army. He seems to like it.
		2	Our teacher has finished marking the essays and she seems very angry.
	10	1	Sarath has joined the army. Seems to like it.
		2	Our teacher has finished marking the essays and seems very angry.
	11	1	Sunil is always out. It bores him to stay at home.
		2	Leela discovered that it tired the old post-man to climb up the stairs.
	12	1	Sunil is always out. Bores him to stay at home.
		2	Leela discovered that tired the old post-man to climb up the stairs.
	13	1	Mala has moved to Kandy. It appears she is pleased with the new house.
		2	The motor-race is on its way. It looks like the Ferrari will win this race.
	14	1	Mala has moved to Kandy. Appears she is pleased with the new house.
		2	The motor-race is on its way. Looks like the Ferrari will win this race.
(b)ii	15	1	Using photocopy machines is easy.
		2	Making paper lanterns for Vesak is a practice in Sri Lanka.
	16	1	Using photocopy machines are easy.
		2	Making paper lanterns for Vesak are a practice in Sri Lanka.
	17	1	The green pen and the red file are mine.
		2	The only people he didn't invite to the wedding were them.
	18	1	The green pen and the red file is mine.
		2	The only people he didn't invite to the wedding was them.
(b)iii	19	1	The news papers said that the man who died in the accident was a famous poet.
		2	During the strike, one of the demonstrators was taken away.

	20	1	The news papers said that the man who died in the accident were a famous poet.
		2	During the strike, one of the demonstrators were taken away.
	21	1	Sarath thinks that Leela has gone home.
		2	A man making hoppers has to be very quick.
	22	1	Sarath thinks that Leela have gone home.
		2	A man making hoppers have to be very quick.
	23	1	Champa's brother usually comes home on Saturdays.
		2	Leela sometimes misses the 7 O'clock train to Wattala.
	24	1	Champa's brother usually come home on Saturdays.
		2	Leela sometimes miss the 7 O'clock train to Wattala.
(c)i	25	1	Champa usually takes the train on Fridays.
		2	Sarath should be at the door when the chief guest arrives.
	26	1	You usually takes the train on Fridays.
		2	Sarath should be at the door when the chief guests arrives.
(c)ii	27	1	Pala hopes Champa will come to the party.
		2	Geetha hopes Sunil will find the book.
	28	1	Pala wants Champa to come to the party.
		2	Geetha wants Sunil to find the book.
	29	1	Pala wants Champa come to the party.
		2	Geetha wants Sunil find the book.
(c)iii	30	1	Leela and Sumana visited their aunt last week.
		2	Yesterday we played our final netball match in the series.
	31	1	Leela and Sumana visit their aunt last week.
		2	Yesterday we play our final netball match in the series.
	32	1	Champa's brother came home late last saturday.
		2	This morning Sarath bought a present for his daughter.
	33	1	Champa's brother come home late last saturday.
		2	This morning Sarath buy a present for his daughter.
	34	1	Before joining the Open Unversity, Champa was teaching at NAITA.
		2	After the party there were many broken glasses.
	35	1	Before joining the Open Unversity, Champa be teaching at NAITA.
		2	After the party there be many broken glasses.

Sent type = Sentence type
No = Sentence number
T = Token

Version B

Sent. type	No	T	
(a)i	1	1	Sarath is patiently reading the book.
		2	Seetha is carefully washing the plates.
	2	1	Sarath patiently is reading the book.
		2	Seetha carefully is washing the plates.
(a)ii	3	1	The musicians who play in 'Maname' are very good.
		2	The men in the green T-shirts are the cricketers from Pakistan.
	4	1	The musicians who play in 'Maname' is very good.
		2	The men in the green T-shirts is the cricketers from Pakistan.
	5	1	The musicians who play in 'Maname' be very good.
		2	The men in the green T-shirts be the cricketers from Pakistan.
	6	1	The musicians who play in 'Maname' very good.
		2	The men in the green T-shirts the cricketers from Pakistan.
(b)i	7	1	Nimal's dog is so fat, he looks like a pumpkin.
		2	Mrs. Perera is quite superstitious. She believes in horoscopes.
	8	1	Nimal's dog is so fat, looks like a pumpkin.
		2	Mrs. Perera is quite superstitious. Believes in horoscopes.
	9	1	Leela has got a new border. She appears pleased with him.
		2	The Minister has come from the meeting and he appears quite angry.
	10	1	Leela has got a new border. She appears pleased with him.
		2	The Minister has come from the meeting and appears quite angry.
	11	1	Sarath is a perfectionist. It angers him to see mistakes.
		2	Champa realized that it annoyed her father to listen to jazz.
	12	1	Sarath is a perfectionist. Angers him to see mistakes.
		2	Champa realized that annoyed her father to listen to jazz.
	13	1	Sarath has joined the army. It seems he likes it.
		2	Ranatunga has gone into bat. It looks like he will get a century.
	14	1	Sarath has joined the army. Seems he likes it.
		2	Ranatunga has gone into bat. Looks like he will get a century.
(b)ii	15	1	Riding motor cycles is dangerous.
		2	Lighting oil lamps at special occasions is a custom in Sri Lanka.
	16	1	Riding motor cycles are dangerous.
		2	Lighting oil lamps at special occasions are a custom in Sri Lanka
	17	1	The blue umbrella and the Parker pen are his.
		2	The only people she didn't ask to the party were them.
	18	1	The blue umbrella and the Parker pen is his.
		2	The only people she didn't ask to the party was them.
(b)iii	19	1	The radio announced that the woman who won the award was a chemical engineer.
		2	During the protest, one of the students was beaten up.
	20	1	The radio announced that the woman who won the award were a chemical engineer.

		2	During the protest, one of the students were beaten up.
	21	1	Pala thinks that John has taken the books.
		2	A carpenter using power tools has to be very careful.
	22	1	Pala thinks that John have taken the books.
		2	A carpenter using power tools have to be very careful.
	23	1	Your sister generally leaves office early on Fridays.
		2	Sumana usually takes the 6 'clock bus to Kadugannawa.
	24	1	Your sister generally leave office early on Fridays.
		2	Sumana usually take the 6 'clock bus to Kadugannawa.
(c)i	25	1	Leela sometimes misses the 7 O'clock train.
		2	The musician should be on stage when the teacher arrives.
	26	1	I sometimes misses the 7 O'clock train.
		2	The musician should be on stage when the teachers arrives .
(c)ii	27	1	Ravi hopes Rani will sit for the exam.
		2	Sumana hopes Anil will stop smoking.
	28	1	Ravi wants Rani to sit for the exam.
		2	Sumana wants Anil to stop smoking.
	29	1	Ravi wants Rani sit for the exam.
		2	Sumana wants Anil stop smoking.
(c)iii	30	1	Shanthi and Pala finished their essays last night.
		2	This morning Sarath attended his last lecture in contract law.
	31	1	Shanthi and Pala finish their essays last night.
		2	This morning Sarath attend his last lecture in contract law.
	32	1	Your sister left office early last friday.
		2	Yesterday Shanthi wrote a letter to her pen friend.
	33	1	Your sister leave office early last friday.
		2	Yesterday Shanthi write a letter to her pen friend.
	34	1	After studying all night Champa was very tired.
		2	After the match there were several fights.
	35	1	After studying all night Champa be very tired.
		2	After the match there be several fights.

Appendix B.1.1 RATING TASK.

ANOVA TABLES FOR ALL SUBJECTS

Table 1-1: Rating. Adverb Placement: - All levels

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	2826.72610	1	2826.72610	2000.30	0.0000
	grade	3.04138	4	0.76035	0.54	0.7081
	lexver	0.11206	1	0.11206	0.08	0.7788
	gr x lv	0.97372	4	0.24343	0.17	0.9522
1	ERROR	155.44659	110	1.41315		
	attr_type	126.52038	1	126.52038	182.88	0.0000
	attr x gr	9.71988	4	2.42997	3.51	0.0097
	attr x lv	0.66922	1	0.66922	0.97	0.3275
	attr x gr x lv	2.68524	4	0.67131	0.97	0.4268
2	ERROR	76.09975	110	0.69182		

Table 2-1: Rating. Verb movement in Complement sentences - All levels

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	4158.80442	1	4158.80442	2321.25	0.0000
	grade	81.06757	4	20.26689	11.31	0.0000
	lexver	24.40329	1	24.40329	13.62	0.0003
	gr x lv	3.84466	4	0.96117	0.54	0.7092
1	ERROR	197.07887	110	1.79163		
	sent_type	252.80938	3	84.26979	97.18	0.0000
	sent x gr	69.12932	12	5.76078	6.64	0.0000
	sent x lv	6.94823	3	2.31608	2.67	0.0475
	sent x gr x lv	8.15820	12	0.67985	0.78	0.6670
2	ERROR					

Table 2-2: Rating. Preference for grammatical complement sentence over ungrammatical Complement sentences - All levels

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	1002.45989	1	1002.45989	297.05	0.0000
	grade	253.30984	4	63.32746	18.77	0.0000
	lexver	16.32138	1	16.32138	4.84	0.0300
	gr x lv	14.55472	4	3.63868	1.08	0.3709
1	ERROR	371.22234	110	3.37475		
	sent _type	2.19441	2	1.09720	1.25	0.2890
	sent x gr	5.80186	8	0.72523	0.83	0.5812
	sent x lv	2.86788	2	1.43394	1.63	0.1980
	sent x gr x lv	4.51952	8	0.56494	0.64	0.7412
2	2ERROR	193.34955	220	0.87886		

Table 3-1: Rating. Overt/ null Referential and Expletive subjects in sentences with Thematic and Raising verbs. - All levels

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	11949.92635	1	11949.92635	6726.45	0.0000
	grade	7.03211	4	1.75803	0.99	0.4164
	lexver	0.07186	1	0.07186	0.04	0.8410
	gr x lv	6.32839	4	1.58210	0.89	0.4722
1	ERROR	195.42123	110	1.77656		
	sub_type	97.21888	1	97.21888	138.64	0.0000
	sub x gr	15.64995	4	3.91249	5.58	0.0004
	sub x lv	1.52317	1	1.52317	2.17	0.1434
	sub x gr x lv	12.60795	4	3.15199	4.50	0.0021
2	ERROR	77.13421	110	0.70122		
	verb_type	0.00004	1	0.00004	0.00	0.9947
	vb x gr	4.88676	4	1.22169	1.32	0.2670
	vb x lv	0.00020	1	0.00020	0.00	0.9882
	vb x gr x lv	2.38292	4	0.59573	0.64	0.6325
3	ERROR	101.8002	110	0.92545		
	sub x vb	7.08813	1	7.08813	12.99	0.0005
	sub x vb x gr	1.37837	4	0.34459	0.63	0.6410
	sub x vb x lv	1.46931	1	1.46931	2.69	0.1037
	sub x vb x gr x lv	3.08151	4	0.77038	1.41	0.2348
4	ERROR	60.01857	110	0.54562		
	attr_type	143.56841	1	143.56841	172.88	0.0000
	attr x gr	93.23913	4	23.30978	28.07	0.0000
	attr x lv	1.53915	1	1.53915	1.85	0.1762
	attr x gr x lv	8.16368	4	2.04092	2.46	0.0497
5	ERROR	91.34778	110	0.83043		
	sub x attr	6.8740	1	6.8740	12.25	0.0007
	sub x attr x gr	2.69953	4	0.67488	1.20	0.3138
	sub x attr x lv	9.69304	1	9.69304	17.28	0.0001
	subx attr x gr x lv	1.13660	4	0.28415	0.51	0.7311
6	ERROR	61.71899	110	0.56108		
	vb x attr	0.10763	1	0.10763	0.17	0.6799
	vb x attr x gr	0.45477	4	0.11369	0.18	0.9480
	vb x attr x lv	1.35314	1	1.35314	2.15	0.1453
	vb x attr x gr x lv	2.60386	4	0.65096	1.03	0.3927
7	ERROR	69.20107	110	0.62910		
	sub x vb x attr	3.57640	1	3.57640	7.76	0.0063
	sub x vb x attr x gr	1.82993	4	0.45748	0.99	0.4147
	subx vb x attr x lv	1.30111	1	1.30111	2.82	0.0957
	sub x vb x attr x gr x lv	3.17851	4	0.79463	1.72	0.1497
8	ERROR	50.68977	110	0.46082		

Table 3-2 : Rating.Preference for sentences with a Referential subject over an expletive subject . <u>All levels</u>

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	196.97496	1	196.97496	143.61	0.0000
	grade	31.05425	4	7.76356	5.66	0.0004
	lexver	2.87152	1	2.87152	2.09	0.1508
	gr x lv	24.72296	4	6.18074	4.51	0.0021
1	ERROR	150.88084	110	1.37164		
	vb_type	15.04346	1	15.70023	13.98	0.0003
	vb x gr	1.57535	4	0.39384	0.37	0.8321
	vb x lv	2.12952	1	2.12952	0.37	0.8321
	vb x gr x lv	7.15882	4	1.78971	1.98	0.1621
2	ERROR	118.25193	110	1.07502	1.66	0.1633
	attr_type	15.70023	1	15.70023	13.98	0.0003
	attr x gr	5.65219	4	1.41305	1.26	0.2908
	attr x lv	20.39800	1	20.39800	18.16	0.0000
	attr x gr x lv	1.36535	4	0.34134	0.30	0.8748
3	ERROR	123.52333	110			
	vb x attr	6.88356	1	6.88356	3.15	0.0586
	vb x attr x gr	2.91810	4	0.72953	0.79	0.0073
	vb x attr x lv	2.90302	1	2.90302	7.47	0.5329
	vb x attr x gr x lv	5.04144	4	1.26036	1.37	0.2497
4	ERROR	101.33170	110			

Table 3-3: Rating. Preference for sentences with Overt subjects over Null subjects - All levels

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	248.84437	1	248.84437	100.17	0.0000
	grade	192.87715	4	48.21929	19.41	0.0000
	lexver	0.04074	1	0.04074	0.02	0.8983
	gr x lv	31.02503	4	7.75626	3.12	0.0178
1	ERROR	273.27083	110	2.48428		
	sub_type	8.97450	1	8.97450	6.32	0.0134
	sub x gr	5.47852	4	1.36963	0.96	0.4302
	sub x lv	9.15639	1	9.15639	6.45	0.0125
	sub x gr x lv	7.60248	4	1.90062	1.34	0.2604
2	ERROR	156.24103	110	1.42037		
	verb_type	2.74581	1	2.74581	6.23	0.0141
	vb x gr	1.00048	4	0.25012	0.57	0.6870
	vb x lv	0.04552	1	0.04552	0.10	0.7486
	vb x gr x lv	0.66585	4	0.16646	0.38	0.8243
3	ERROR	48.51410	110	0.44104		
	sub x vb	2.74581	1	2.74581	6.23	0.0141
	sub x vb x gr	1.00048	4	0.25012	0.57	0.6870
	sub x vb x lv	0.04552	1	0.04552	0.10	0.7486
	sub x vb x gr x lv	0.66585	4	0.16646	0.38	0.8243
4	ERROR	48.51410	110	0.44104		

Table 4-1: Rating. Number agreement - Subject-Verb agreement with Singular and Plural subject NPs - All levels

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	5586.03633	1	5586.03633	4035.90	0.0000
	grade	14.14363	4	3.53591	2.55	0.0429
	lexver	1.66043	1	1.66043	1.20	0.2758
	gr x lv	10.32945	4	2.58236	1.87	0.1215
1	ERROR	152.24942	110	1.38409		
	number	15.42002	1	15.42002	17.29	0.0001
	num x gr	14.47953	4	3.61988	4.06	0.0042
	num x lv	0.27409	1	0.27409	0.31	0.5805
	num x gr x lv	1.09547	4	0.27387	0.31	0.8727
2	ERROR	98.11035	110	0.89191		
	attr_type	154.68890	1	154.68890	166.21	0.0000
	attr x gr	110.82984	4	27.70746	29.77	0.0000
	attr x lv	0.83881	1	0.83881	0.90	0.3445
	attr x gr x lv	0.61334	4	0.15333	0.16	0.9558
3	ERROR	102.37500	110	0.93068		
	num x attr	0.00207	1	0.00207	0.00	0.9550
	num x attr x gr	4.24273	4	1.06068	1.64	0.1705
	num x attr x lv	0.03816	1	0.03816	0.06	0.8088
	num x attr x gr x lv	1.40784	4	0.35196	0.54	0.7047
4	ERROR	71.34686	110	0.64861		

Table 5-1: Rating. Person agreement. Subject-Verb agreement marking on Copula, Auxiliary and Thematic verbs. - All levels

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	8787.05920	1	8787.05920	5496.76	0.0000
	grade	26.45573	4	6.61393	4.14	0.0037
	lexver	3.87319	1	3.87319	2.42	0.1224
	gr x lv	8.51865	4	2.12966	1.33	0.2625
1	ERROR	175.84471	110	1.59859		
	verb_type	4.37348	2	2.18674	2.79	0.0635
	vb x gr	19.55853	8	2.44482	3.12	0.0023
	vb x lv	0.10562	2	0.05281	0.07	0.9348
	vb x gr x lv	5.21767	8	0.65221	0.83	0.5745
2	ERROR	172.29223	220	0.78315		
	attr_type	307.34015	1	307.34015	229.51	0.0000
	attr x gr	105.05449	4	26.26362	19.61	0.0000
	attr x lv	0.01427	1	0.01427	0.01	0.9180
	attr x gr x lv	1.60767	4	0.40192	0.30	0.8773
3	ERROR	147.30568	110	1.33914		
	vb x attr	2.18743	2	1.09371	1.34	0.2642
	vb x attr x gr	5.06854	8	0.63357	0.78	0.6245
	vb x attr x lv	1.31180	2	0.65590	0.80	0.4492
	vb x attr x gr x lv	1.73780	8	0.21722	0.27	0.9762
4	ERROR	179.67007	220	0.81668		

Table 5-2: Rating. Preference for one verb type over another- Person agreement marking - All levels

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	55.85761	1	55.85761	31.95	0.0000
	grade	32.38585	4	8.09646	4.65	0.0017
1	ERROR	201.07104	115	1.74844		
	pref_type	84.89181	2	42.44590	24.19	0.0000
	pref x gr	19.78066	8	2.47258	1.43	0.1828
2	ERROR	396.32331	230	1.72314		
	verb_type	48.52640	1	48.52640	28.45	0.0000
	vb x gr	9.57649	4	2.39412	1.53	0.1974
3	ERROR	179.67764	115	1.56241		
	pref x attr	77.60142	2	38.80071	26.74	0.0001
	pref x attr x gr	52.03303	8	6.50413	4.35	0.0001
4	ERROR	328.14955	230	1.42674		

Table 5-3: Rating. Preference for sentences with subject-verb agreement [+Person] marking over sentences without s-v agreement marking. All levels

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	0.00528	1	0.00528	0.00	0.9538
	grade	11.90869	4	2.97717	1.90	0.1154
	lexver	2.21031	1	2.21031	1.41	0.2375
	gr x lv	10.79896	4	2.69974	1.72	0.1499
1	ERROR	172.31697	110	1.56652		
	verb_type	11.71187	2	5.85594	2.50	0.0842
	vb x gr	31.21372	8	3.90172	1.67	0.1076
	vb x lv	2.56977	2	1.28489	0.55	0.5782
	vb x gr x lv	28.75504	8	3.59438	1.54	0.1459
2	ERROR	514.74946	220	2.33977		

Table 6-1: Rating. 3ps.sg. -s as an AGR marker, as a TNS marker. - All levels

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	3061.18445	1	3061.18445	3051.28	0.0000
	grade	21.53331	4	5.38333	5.37	0.0006
	lexver	9.34238	1	9.34238	9.31	0.0029
	gr x lv	6.39428	4	1.59857	1.59	0.1811
1	ERROR	110.35720	110	1.00325		
	attr_type	69.88206	1	69.88206	63.40	0.0000
	attr x gr	23.74758	4	5.93689	5.39	0.0005
	attr x lv	0.63794	1	0.63794	0.58	0.4484
	attr x gr x lv	2.21423	4	0.55356	0.50	0.7342
2	ERROR	121.25386	110	1.10231		

Table 7-1: TNS markers in Finite and Non-finite sentences. - All levels

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	3513.41294	1	3513.41294	2365.62	0.0000
	grade	8.64612	4	2.16153	1.46	0.2207
	lexver	1.67082	1	1.67082	1.12	0.2912
	gr x lv	3.00676	4	0.75169	0.51	0.7313
1	ERROR	163.37158	110	1.48520		
	tns_type	113.51588	2	56.75794	61.65	0.0000
	tns x gr	86.03730	8	10.75466	11.68	0.0000
	tns x lv	12.45823	2	6.22912	6.77	0.0014
	tns x gr x lv	6.11223	8	0.76403	0.83	0.5771
2	ERROR	202.53655	220	0.92062		

Table 7-2: Rating. Preference for sentences with TNS markers over sentences without TNS markers. All levels

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	258.03346	1	258.03346	86.22	0.0000
	grade	209.93896	4	52.48474	17.54	0.0000
	lexver	27.43550	1	27.43550	9.17	0.0031
	gr x lv	12.35898	4	3.08974	1.03	0.3939
1	ERROR	329.18595	110	2.99260		
	preference	27.50472	1	27.50472	32.60	0.0000
	pref x gr	16.05765	4	4.01441	4.76	0.0014
	pref x lv	3.31307	1	3.31307	3.93	0.0500
	pref x gr x lv	1.99257	4	0.49814	0.59	0.6703
2	ERROR	92.80790	110	0.84371		

Table 8-1: Rating. [+/- Past] tense marking with different inflections types: past regular, past irregular and past tense marking on copula verbs. All levels

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	7883.22625	1	7883.22625	4116.82	0.0000
	grade	9.65521	4	2.41380	1.26	0.2899
	lexver	1.18822	1	1.18822	0.62	0.4325
	gr x lv	9.29175	4	2.32294	1.21	0.3094
1	ERROR	210.63695	110	1.91488		
	infl_type	456.65473	2	228.32737	144.15	0.0000
	infl x gr	59.42409	8	7.42801	4.69	0.0000
	infl x lv	1.52293	2	0.76147	0.48	0.6190
	infl x gr x lv	4.57020	8	0.57127	0.36	0.9401
2	ERROR	348.46126	220	1.58391		
	attr_type	140.32072	1	140.32072	79.03	0.0000
	attr x gr	10.52953	4	2.63238	1.48	0.2124
	attr x lv	0.12506	1	0.12506	0.07	0.7912
	attr x gr x lv	0.33553	4	0.08388	0.05	0.9957
3	ERROR	195.30808	110	1.77553		
	infl x attr	98.36481	2	49.18240	28.24	0.0000
	infl x attr x gr	43.22449	8	5.40306	3.10	0.0024
	infl x attr x lv	1.49093	2	0.74547	0.43	0.6523
	infl x attr x gr x lv	6.07908	8	0.75989	0.44	0.8984
4	ERROR	383.12136	220	1.74146		

Appendix B.1.2 : MAGNITUDE ESTIMATION TASK.

ANOVA TABLES FOR ALL SUBJECTS

Table 1-1: Magnitude Estimation. Adverb Placement: - All levels

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	2116.58607	1	2116.58607	911.85	0.0000
	grade	20.98085	4	5.24521	2.26	0.0667
	lexver	1.07216	1	1.07216	0.46	0.4981
	gr x lv	8.63689	4	2.15922	0.93	0.4489
1	ERROR	276.22274	119	2.32120		
	attr_type	10.93527	1	10.93527	65.09	0.0000
	attr x gr	1.38898	4	0.34725	2.07	0.0894
	attr x lv	0.01021	1	0.01021	0.06	0.8057
	attr x gr x lv	1.14663	4	0.28666	1.71	0.1531
2	ERROR	19.99303	119	0.16801		

Table 2-1: Magnitude Estimation.Verb movement in Complement sentences - All levels

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	2986.27176	1	2986.27176	861.30	0.0000
	grade	52.54069	4	13.13517	3.79	0.0062
	lexver	11.88647	1	11.88647	3.43	0.0665
	gr x lv	18.64152	4	4.66038	1.34	0.2576
1	ERROR	416.06087	120	3.46717		
	sent_type	224.08623	3	74.69541	294.13	0.0000
	sent x gr	9.09029	12	0.75752	2.98	0.0005
	sent x lv	0.80015	3	0.26672	1.05	0.3703
	sent x gr x lv	1.79959	12	0.14997	0.59	0.8500
2	ERROR	91.42222	360	0.25395		

Table 2-2: Magnitude Estimation. Preference for grammatical complement sentence over ungrammatical Complement sentences - All levels

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	311.26089	1	311.26089	324.56	0.0000
	grade	15.07171	4	3.76793	3.93	0.0049
	lexver	0.86715	1	0.86715	0.90	0.3436
	gr x lv	0.61722	4	0.15431	0.16	0.9577
1	ERROR	115.08177	120	0.95901		
	sent_type	146.27101	2	73.13551	280.16	0.0000
	sent x gr	5.32236	8	0.66530	2.55	0.0111
	sent x lv	0.58336	2	0.29168	1.12	0.3288
	sent x gr x lv	1.64528	8	0.20566	0.79	0.6138
2	ERROR	62.65178	240	0.26105		

Table 3-1: Magnitude Estimation.Overt/ null Referential and Expletive subjects in sentences with Thematic and Raising verbs. - All levels

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	8530.42743	1	8530.42743	1001.32	0.0000
	grade	71.74817	4	17.93704	2.11	0.0844
	lexver	8.60453	1	8.60453	1.01	0.3169
	gr x lv	v35.29109	4	8.82277	1.04	0.3918
1	ERROR	1013.78605	119	8.51921		
	subject	17.93737	1	17.93737	131.86	0.0000
	sub x gr	0.76431	4	0.19108	1.40	0.0366
	sub x lv	0.07731	1	0.07731	0.57	0.4524
	sub x gr x lv	0.67643	4	0.16911	1.24	0.2964
2	ERROR	16.18790	119	0.13603		
	verb	1.14828	1	1.14828	10.31	0.0017
	vb x gr	0.83915	4	0.20979	1.88	0.1178
	vb x lv	0.00001	1	0.00001	0.00	0.9919
	vb x gr x lv	0.02593	4	0.00648	0.06	0.9936
3	ERROR	13.25504	119	0.11139		
	sub x vb	1.63544	1	1.63544	14.84	0.0002
	sub x vb x gr	0.57153	4	0.14288	1.30	0.2752
	sub x vb x lv	0.28701	1	0.28701	2.61	0.1092
	sub x vb x gr x lv	0.81101	4	0.20275	1.84	0.1256
4	ERROR	13.11022	119	0.11017		
	attrbute	17.40608	1	17.40608	91.34	0.0000
	attr x gr	12.71122	4	3.17780	16.68	0.0000
	attr x lv	0.00148	1	0.00148	0.01	0.9300
	attr x gr x lv	0.71615	4	0.17904	0.94	0.4436
5	ERROR	22.67643	119	0.19056		
	sub x attr	2.36644	1	2.36644	20.28	0.0000
	sub x attr x gr	2.32041	4	0.58010	4.97	0.0010
	sub x attr x lv	0.90129	1	0.90129	7.73	0.0063
	sub x attr x gr x lv	0.38708	4	0.09677	0.83	0.5090
6	ERROR	13.88386	119	0.11667		
	attr x vb	0.43537	1	0.43537	5.00	0.0272
	attr x vb x gr	0.72196	4	0.18049	2.07	0.0886
	attr x vb x lv	0.01308	1	0.01308	0.15	0.6990
	attr x vb x gr x lv	0.08865	4	0.02216	0.25	0.9064
7	ERROR	10.36087	119	0.08707		
	sub x attr x vb	0.78036	1	0.78036	7.24	0.0081
	sub x attr x vb x gr	0.27285	4	0.06821	0.63	0.6399
	subx attr x vb x lv	0.13543	1	0.13543	1.26	0.2645
	sub x attr x vb x gr x lv	0.34001	4	0.08500	0.79	0.5346
8	ERROR	12.82226	119	0.10775		

Table 3-2 : Magnitude Estimation.Preference for sentences with a Referential subject over an expletive subject. All levels

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	35.87474	1	35.87474	131.86	0.0000
	grade	1.52862	4	0.38216	1.40	0.2366
	lexver	0.15462	1	0.15462	0.57	0.4524
	gr x lv	1.35287	4	0.33822	1.24	0.2964
1	ERROR	32.37581	119	0.27207		
	verb	3.27089	1	3.27089	14.84	0.0002
	vb x gr	1.14307	4	0.28577	1.30	0.2752
	vb x lv	0.57402	1	0.57402	2.61	0.1092
	vb x gr x lv	1.62201	4	0.40550	1.84	0.1256
2	ERROR	26.22044	119	0.22034		
	attr_type	4.73287	1	4.73287	20.28	0.0000
	attr x gr	4.64083	4	1.16021	4.97	0.0010
	attr x lv	1.80258	1	1.80258	7.73	0.0063
	attr x gr x lv	0.77416	4	0.19354	0.83	0.5090
3	ERROR	27.76772	119	0.23334		
	attr x vb	1.56072	1	1.56072	7.24	0.0081
	attr x vb x gr	0.54571	4	0.13643	0.63	0.6399
	attr x vb x lv	0.27085	1	0.27085	1.26	0.2645
	attr x vb gr x lv	0.68002	4	0.17000	0.79	0.5346
4	ERROR	25.64452	119	0.21550		

Table 3-3: Magnitude Estimation. Preference for sentences with Overt subjects over Null subjects. All levels

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	51.50917	1	51.50917	100.07	0.0000
	grade	31.80378	4	7.95094	15.45	0.0000
	lexver	0.19265	1	0.19265	0.37	0.5419
	gr x lv	0.61888	4	0.15472	0.30	0.8771
1	ERROR	61.25525	119	0.51475		
	sub_type	0.80768	1	0.80768	5.64	0.0191
	sub x gr	2.42066	4	0.60517	4.23	0.0031
	sub x lv	0.72139	1	0.72139	5.04	0.0266
	sub x gr x lv	0.21139	4	0.05285	0.37	0.8302
2	ERROR	17.03232	119	0.14313		
	vbtype	0.11811	1	0.11811	0.58	0.4477
	vb x gr	0.69893	4	0.17473	0.86	0.4911
	vb x lv	0.10988	1	0.10988	0.54	0.4639
	vb x gr x lv	0.16031	4	0.04008	0.20	0.9396
3	ERROR	24.21884	119	0.20352		
	vb x sub	6.38115	1	6.38115	28.63	0.0000
	vb x sub x gr	1.11986	4	0.27996	1.26	0.2911
	vb x sub x lv	1.02757	1	1.02757	4.61	0.0338
	vb x sub x gr x lv	0.85944	4	0.21486	0.96	0.4299
4	ERROR	26.51885	119	0.22285		

Table 4-1: Magnitude Estimation. Number agreement - Subject-Verb agreement with Singular and Plural subject NP's. All levels

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	4176.83465	1	4176.83465	898.17	0.0000
	grade	47.60272	4	11.90068	2.56	0.0421
	lexver	15.38199	1	15.38199	3.31	0.0715
	gr x lv	14.17114	4	3.54278	0.76	0.5521
1	ERROR	553.39686	119	4.65039		
	number	0.33076	1	0.33076	1.74	0.0451
	num x gr	1.15196	4	0.28799	1.51	0.2029
	num x lv	0.39955	1	0.39955	2.10	0.1501
	num x gr x lv	1.91577	4	0.47894	2.52	0.1901
2	ERROR	22.66050	119	0.19042		
	attr_type	17.82718	1	17.82718	53.66	0.0000
	attr x gr	6.46368	4	1.61592	4.86	0.0011
	attr x lv	1.13980	1	1.13980	3.43	0.0665
	attr x gr x lv	0.16923	4	0.04231	0.13	0.9723
3	ERROR	39.53533	119	0.33223		
	attr x num	0.31779	1	0.31779	1.96	0.1643
	attr x num x gr	0.34740	4	0.08685	0.54	0.7101
	attr x num x lv	0.12809	1	0.12809	0.79	0.3761
	attr x num x gr x lv	0.28616	4	0.07154	0.44	0.7788
4	ERROR	19.30873	119	0.16226		

Table 5-1: Magnitude Estimation. Person agreement. Subject-Verb agreement marking on Copula, Auxiliary and Thematic verbs. - <u>All levels</u>

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	6434.63172	1	6434.63172	952.10	0.0000
	grade	84.32443	4	21.08111	3.12	0.0176
	lexver	21.13445	1	21.13445	3.13	0.0796
	gr x lv	21.25344	4	5.31336	0.79	0.5363
1	ERROR	804.24634	119	6.75837		
	attr_type	25.25665	1	25.25665	62.87	0.0000
	attr x gr	10.14837	4	2.53709	6.32	0.0001
	attr x lv	0.60028	1	0.60028	1.49	0.2240
	attr x gr x lv	0.10982	4	0.02745	0.07	0.9913
2	ERROR	47.80357	119	0.40171		
	verb_type	0.41580	2	0.20790	1.17	0.3115
	vb x gr	1.09343	8	0.13668	0.77	0.6290
	vb x lv	0.52804	2	0.26402	1.49	0.2278
	vb x gr x lv	2.72920	8	0.34115	1.92	0.0573
3	ERROR	42.21384	238	0.17737		
	attr x vb	0.50805	2	0.25402	1.61	0.2014
	attr x vb x gr	1.26978	8	0.15872	1.01	0.4305
	attr x vb x lv	0.04982	2	0.02491	0,16	0.8538
	attr x vb x gr x lv	1.03057	8	0.12882	0,82	0.5872
4	ERROR	37.47229	238	0.15745		

Table 5-2: Magnitude Estimation.Preference for one verb type over another- Person agreement marking. All levels

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	1.15594	1	1.15594	2.44	0.1213
	grade	1.60650	4	0.40162	0.85	0.4986
	lexver	0.10588	1	0.10588	0.22	0.6376
	gr x lv	6.07978	4	1.51994	3.20	0.0155
1	ERROR	56.47528	119	0.47458		
	pref_type	11.93669	2	5.96835	16.15	0.0000
	pref x gr	4.40570	8	0.55071	1.49	0.1613
	pref x lv	0.75966	2	0.37983	1.03	0.3593
	pref x gr x lv	1.87343	8	0.23418	0.63	0.7490
2	ERROR	87.94127	238	0.36950		
	verb_type	0.69174	1	0.69174	4.21	0.0423
	vb x gr	0.61125	4	0.15281	0.93	0.4485
	vb x lv	0.00588	1	0.00588	0.04	0.8502
	vb x gr x lv	0.38156	4	0.09539	0.58	0.6769
3	ERROR	19.53313	119	0.16414		
	pref x vb	8.43847	2	4.21923	11.91	0.0000
	pref x vb x gr	8.42478	8	1.05310	2.97	0.0034
	pref x vb x lv	0.48493	2	0.24246	0.68	0.5055
	pref x vb x gr x lv	2.48989	8	0.31124	0.88	0.5354
4	ERROR	84.33340	238	0.35434		

Table 5-3: Magnitude Estimation. Preference for sentences with subject-verb agreement [+Person] marking over sentences without s-v agreement marking. All levels

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	50.51329	1	50.51329	62.87	0.0000
	grade	20.29674	4	5.07419	6.32	0.0001
	lexver	1.20055	1	1.20055	1.49	0.2240
	gr x lv	0.21964	4	0.05491	0.07	0.9913
1	ERROR	95.60714	119	0.80342		
	verb_type	1.01609	2	0.50805	1.61	0.2014
	vb x gr	2.53957	8	0.31745	1.01	0.4305
	vb x lv	0.09963	2	0.04982	0.16	0.8538
	vb x gr x lv	2.06114	8	0.25764	0.82	0.5872
2	ERROR	74.94457	238	0.31489		

Table 6-1: Magnitude Estimation. 3ps.sg. -s as an AGR marker, as a TNS marker. - All levels

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	2163.11832	1	2163.11832	911.89	0.0000
	grade	29.11324	4	7.27831	3.07	0.0191
	lexver	7.20766	1	7.20766	3.04	0.0839
	gr x lv	7.77888	4	1.94472	0.82	0.5150
1	ERROR	284.65463	120	2.37212		
	sent_type	2.97719	1	2.97719	8.34	0.0046
	sent x gr	3.67325	4	0.91831	2.57	0.0413
	gr x lv	0.67212	1	0.67212	1.88	0.1726
	sent x gr x lv	0.65464	4	0.16366	0.46	0.7661
2	ERROR	42.84815	120	0.35707		

Table 7-1: Magnitude Estimation.TNS markers in Finite and Non-finite sentences. All levels

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	2899.25055	1	2899.25055	873.76	0.0000
	grade	28.47987	4	7.11997	2.15	0.0793
	lexver	7.11239	1	7.11239	2.14	0.1458
	gr x lv	18.72655	4	4.68164	1.41	0.2345
1	ERROR	398.17717	120	3.31814		
	tns_type	12.83908	2	6.41954	30.57	0.0000
	tns x gr	9.81124	8	1.22641	5.84	0.0000
	tns x lv	4.83498	2	2.41749	11.51	0.0000
	tns x gr x lv	0.79780	8	0.09972	0.47	0.8733
2	ERROR	50.39441	240	0.20998		

Table 7-2: Magnitude Estimation. Preference for sentences with TNS markers over sentences without TNS markers. All levels

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	25.01052	1	25.01052	35.37	0.0000
	grade	22.34291	4	5.58573	7.90	0.0000
	lexver	10.71494	1	10.71494	15.15	0.0002
	gr x lv	1.40653	4	0.35163	0.50	0.7378
1	ERROR	84.86111	120	0.70718		
	pref_tns	4.50224	1	4.50224	24.44	0.0000
	pref x gr	2.36361	4	0.59090	3.21	0.0153
	pref x lv	1.26334	1	1.26334	6.86	0.0100
	pref x gr x lv	0.32896	4	0.08224	0.45	0.7748
2	ERROR	22.10737	120	0.18423		

Table 8-1: Magnitude Estimation. [+/- Past] tense marking with different inflections types: past regular, past irregular and past tense marking on copula verbs. All levels

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	6301.54950	1	6301.54950	889.44	0.0000
	grade	67.82965	4	16.95741	2.39	0.0543
	lexver	6.78480	1	6.78480	0.96	0.3297
	gr x lv	21.99529	4	5.49882	0.78	0.5428
1	ERROR	850.17865	120	7.08482		
	infl_type	39.98403	2	19.99202	44.83	0.0000
	infl x gr	3.86624	8	0.48328	1.08	0.3751
	infl x lv	0.99142	2	0.49571	1.11	0.3307
	infl x gr x lv	1.72991	8	0.21624	0.48	0.8664
2	ERROR	107.02942	240	0.44596		
	attr_type	14.04415	1	14.04415	34.43	0.0000
	attr x gr	2.44725	4	0.61181	1.50	0.2066
	attr x lv	3.18496	1	3.18496	7.81	0.0061
	attr x gr x lv	0.09274	4	0.02319	0.06	0.9939
3	ERROR	48.95346	120	0.40795		
	infl x attr	9.43552	2	4.71776	11.76	0.0000
	infl x attr x gr	1.98886	8	0.24861	0.62	0.7610
	infl x attr x lv	0.75134	2	0.37567	0.94	0.3934
	infl x attr x gr x lv	3.42260	8	0.42783	1.07	0.3873
4	ERROR	96.2776	240	0.40116		

Appendix B.2.1: RATING TASK.

ANOVA TABLES FOR ESL SPEAKERS

Table 1-1: Rating task. Adverb Placement: - ESL Speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	2817.83731	1	2817.83731	1914.19	0.0000
	grade	1.39796	3	0.46599	0.32	0.8134
	lexver	0.23522	1	0.23522	0.16	0.6902
	gr x lv	0.90861	3	0.30287	0.21	0.8922
1	ERROR	148.67992	101	1.47208		
	attr_type	115.36748	1	115.36748	166.38	0.0000
	attr x gr	8.82409	3	2.94136	4.24	0.0072
	attr x lv	2.13607	1	2.13607	3.08	0.0823
	attr x gr x lv	1.71575	3	0.57192	0.82	0.4832
2	ERROR	70.03308	101	0.69340		

Table 2-1: Rating task.Verb movement in Complement sentences - ESL Speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	4646.38962	1	4646.38962	2452.79	0.0000
	grade	62.86946	3	20.95649	11.06	0.0000
	lexver	26.60279	1	26.60279	14.04	0.0003
	gr x lv	3.76385	3	1.25462	0.66	0.5771
1	ERROR	191.32679	101	1.89432		
	sent_type	173.40743	3	57.80248	63.18	0.0000
	sent x gr	46.89810	9	5.21090	5.70	0.0000
	sent x lv	6.27595	3	2.09198	2.29	0.0788
	sent x gr x lv	6.99579	9	0.77731	0.85	0.5710
2	ERROR	277.23222	303	0.91496		

Table 2-2: Rating task. Preference for grammatical complement sentence over ungrammatical Complement sentences - ESL Speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	681.68995	1	681.68995	189.38	0.0000
	grade	168.96382	3	56.32127	15.65	0.0000
	lexver	14.79246	1	14.79246	4.11	0.0453
	gr x lv	14.46949	3	4.82316	1.34	0.2657
1	ERROR	363.55290	101	3.59953		
	sent_type	2.98494	2	1.49247	1.62	0.2009
	sent x gr	4.65715	6	0.77619	0.84	0.5393
	sent x lv	2.57784	2	1.28892	1.40	0.2497
	sent x gr x lv	3.37842	6	0.56307	0.61	0.7219
2	ERROR	186.34399	202	0.92250		

Table 3-1: Rating task.Overt/ null Referential and Expletive subjects in sentences with Thematic and Raising verbs. - ESL Speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	12388.04156	1	12388.04156	6525.13	0.0000
	grade	7.67767	3	2.55922	1.35	0.2631
	lexver	1.67761	1	1.67761	0.88	0.3494
	gr x lv	4.12999	3	1.37666	0.73	0.5393
1	ERROR	191.74970	101	1.89851		
	sub_type	124.98132	1	124.98132	177.31	0.0000
	sub x gr	12.32378	3	4.10793	5.83	0.0010
	sub x lv	0.07288	1	0.07288	0.10	0.7485
	sub x gr x lv	10.39433	3	3.46478	4.92	0.0031
2	ERROR	71.19211	101	0.70487		
	verb_type	0.34544	1	0.34544	0.36	0.5496
	vb x gr	4.22397	3	1.40799	1.47	0.2275
	vb x lv	0.08173	1	0.08173	0.09	0.7709
	vb x gr x lv	2.01358	3	0.67119	0.70	0.5540
3	ERROR	96.80462	101	0.95846		
	sub x vb	8.55600	1	8.55600	15.51	0.0002
	sub x vb x gr	0.73897	3	0.24632	0.45	0.7203
	sub x vb x lv	1.97316	1	1.97316	3.58	0.0615
	sub x vb x gr x lv	3.28155	3	1.09385	1.98	0.1213
4	ERROR	55.71620	101	0.55165		
	attr_type	67.05998	1	67.05998	80.68	0.0000
	attr x gr	57.92571	3	19.30857	23.23	0.0000
	attr x lv	2.31826	1	2.31826	2.79	0.0980
	attr x gr x lv	7.74351	3	2.58117	3.11	0.0299
5	ERROR	83.94482	101	0.83114		
	sub x attr	10.71290	1	10.71290	19.93	0.0000
	sub x attr x gr	2.43034	3	0.81011	1.51	0.2173
	sub x attr x lv	10.98813	1	10.98813	20.44	0.0000
	sub x attr x gr x lv	0.67054	3	0.22351	0.42	0.7420
6	ERROR	54.29252	101	0.53755		
	vb x attr	0.33974	1	0.33974	0.51	0.4775
	vb x attr x gr	0.27443	3	0.09148	0.14	0.9378
	vb x attr x lv	1.05909	1	1.05909	1.59	0.2109
	vb x attr x gr x lv	2.40861	3	0.80287	1.20	0.3131
7	ERROR	67.48523	101	0.66817		
	sub x vb x attr	6.54487	1	6.54487	13.79	0.0003
	sub x vb x attr x gr	0.34708	3	0.11569	0.24	0.8656
	sub x vb x attr x lv	2.50331	1	2.50331	5.27	0.0237
	sub x vb x attr x gr x lv	2.21690	3	0.73897	1.56	0.2045
8	ERROR	47.93317	101	0.47459		

Table 3-2 : Rating task.Preference for sentences with a Referential subject over an expletive subject - ESL Speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	249.96263	1	249.96263	177.31	0.0000
	grade	24.64756	3	8.21585	5.83	0.0010
	lexver	0.14575	1	0.14575	0.10	0.7485
	gr x lv	20.78867	3	6.92956	4.92	0.0031
1	ERROR	142.38423	101	1.40974		
	verb_type	17.11200	1	17.11200	15.51	0.0002
	vb x gr	1.47794	3	0.49265	0.45	0.7203
	vb x lv	3.94631	1	3.94631	3.58	0.0615
	vb x gr x lv	6.56310	3	2.18770	1.98	0.1213
2	ERROR	111.43240	101	1.10329		
	attr_type	21.42581	1	21.42581	19.93	0.0000
	attr x gr	4.86068	3	1.62023	1.51	0.2173
	attr x lv	21.97627	1	21.97627	20.44	0.0000
	attr x gr x lv	1.34108	3	0.44703	0.42	0.7420
3	ERROR	108.58505	101	1.07510		
	vb x attr	13.08973	1	13.08973	13.79	0.0003
	vb x attr x gr	0.69416	3	0.23139	0.24	0.8656
	vb x attr x lv	5.00662	1	5.00662	5.27	0.0237
	vb x attr x gr x lv	4.43380	3	1.47793	1.56	0.2045
4	ERROR	95.86633	101	0.94917		

Table 3-3: Rating task.Preference for sentences with Overt subjects over Null subjects - ESL Speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	103.71757	1	103.71757	40.01	0.0000
	grade	112.85444	3	37.61815	14.51	0.0000
	lexver	0.09412	1	0.09412	0.04	0.8493
	gr x lv	31.00633	3	10.33544	3.99	0.0099
1	ERROR	261.83671	101	2.59244		
	sub_type	10.44561	1	10.44561	7.40	0.0077
	sub x gr	5.42458	3	1.80819	1.28	0.2848
	sub x lv	8.07363	1	8.07363	5.72	0.0186
	sub x gr x lv	7.49491	3	2.49830	1.77	0.1575
2	ERROR	142.49442	101	1.41084		
	verb_type	4.93346	1	4.93346	11.06	0.0012
	vb x gr	0.30515	3	0.10172	0.23	0.8767
	vb x lv	0.15294	1	0.15294	0.34	0.5595
	vb x gr x lv	0.57839	3	0.19280	0.43	0.7304
3	ERROR	45.05707	101	0.44611		
	sub x vb	4.93346	1	4.93346	11.06	0.0012
	sub x vb x gr	0.30515	3	0.10172	0.23	0.8767
	sub x vb x lv	0.15294	1	0.15294	0.34	0.5595
	sub x vb x gr x lv	0.57839	3	0.19280	0.43	0.7304
4	ERROR	45.05707	101	0.44611		

Table 4-1: Rating task.Number agreement - Subject-Verb agreement with Singular and Plural subject NPs - ESL Speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	5820.40142	1	5820.40142	4001.85	0.0000
	grade	13.45954	3	4.48651	3.08	0.0307
	lexver	0.46140	1	0.46140	0.32	0.5745
	gr x lv	9.62285	3	3.20762	2.21	0.0921
1	ERROR	146.89734	101	1.45443		
	number	25.53104	1	25.53104	26.69	0.0000
	num x gr	11.70542	3	3.90181	4.08	0.0089
	num x lv	0.23174	1	0.23174	0.24	0.6236
	num x gr x lv	1.09337	3	0.36446	0.38	0.7669
2	ERROR	96.60827	101	0.95652		
	attr_type	81.01886	1	81.01886	87.97	0.0000
	attr x gr	79.29010	3	26.43003	28.70	0.0000
	attr x lv	0.52044	1	0.52044	0.57	0.4540
	attr x gr x lv	0.50217	3	0.16739	0.18	0.9086
3	ERROR	93.02292	101	0.92102		
	num x attr	0.24730	1	0.24730	0.36	0.5523
	num x attr x gr	3.71430	3	1.23810	1.78	0.1557
	num x attr x lv	0.00718	1	0.00718	0.01	0.9193
	num x attr x gr x lv	1.21576	3	0.40525	0.58	0.6277
4	ERROR	70.24478	101	0.69549		

Table 5-1: Rating task.Person agreement. Subject-Verb agreement marking on Copula, Auxiliary and Thematic verbs. - ESL Speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	9515.34416	1	9515.34416	5694.21	0.0000
	grade	11.83263	3	3.94421	2.36	0.0759
	lexver	0.56665	1	0.56665	0.34	0.5616
	gr x lv	5.21313	3	1.73771	1.04	0.3783
1	ERROR	168.77666	101	1.67106		
	verb_type	6.80399	2	3.40200	4.10	0.0181
	vb x gr	14.15507	6	2.35918	2.84	0.0112
	vb x lv	0.06323	2	0.03161	0.04	0.9627
	vb x gr x lv	4.91014	6	0.81836	0.99	0.4364
2	ERROR	167.81445	202	0.83076		
	attr_type	188.80552	1	188.80552	138.56	0.0000
	attr x gr	65.87581	3	21.95860	16.11	0.0000
	attr x lv	0.03609	1	0.03609	0.03	0.8711
	attr x gr x lv	1.40567	3	0.46856	0.34	0.7937
3	ERROR	137.62651	101	1.36264		
	vb x attr	1.95207	2	0.97604	1.14	0.3214
	vb x attr x gr	4.95450	6	0.82575	0.97	0.4496
	vb x attr x lv	1.38746	2	0.69373	0.81	0.4457
	vb x attr x gr x lv	1.09033	6	0.18172	0.21	0.9726
4	ERROR	172.73674	202	0.85513		

Table 5-2: Rating task. Preference for one verb type over another- Person agreement marking. ESL Speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	20.97696	1	20.97696	11.44	0.0010
	grade	11.91088	3	3.97029	2.17	0.0964
1	ERROR	192.48014	105	1.83314		
	pref_type	92.00015	2	46.00007	25.22	0.0000
	pref x gr	19.25210	6	3.20868	1.76	0.1090
2	ERROR	383.09604	210	1.82427		
	attr_type	29.96645	1	29.96645	18.06	0.0000
	attr x gr	3.36357	3	1.12119	0.68	0.5689
3	ERROR	174.23824	105	1.65941		
	pref x attr	53.68803	2	26.84402	17.99	0.0000
	pref x attr x gr	45.65462	6	7.60910	5.10	0.0001
4	ERROR	313.36168	210	1.49220		

Table 5-3: Rating task.Preference for sentences with subject-verb agreement [+Person] marking over sentences without s-v agreement marking. ESL Speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	1.90330	1	1.90330	1.18	0.2808
	grade	8.19626	3	2.73209	1.69	0.1743
	lexver	1.19314	1	1.19314	0.74	0.3926
	gr x lv	10.22591	3	3.40864	2.11	0.1042
1	ERROR	163.47252	101	1.61854		
	verb_type	3.12610	2	1.56305	0.64	0.5309
	vb x gr	22.06489	6	3.67748	1.49	0.1816
	vb x lv	0.20709	2	0.10355	0.04	0.9588
	vb x gr x lv	22.18493	6	3.69749	1.50	0.1789
2	ERROR	497.06057	202	2.46070		

Table 6-1: Rating task. 3ps.sg. -s as an AGR marker, as a TNS marker. - ESL Speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	3412.35259	1	3412.35259	3359.04	0.0000
	grade	9.47648	3	3.15883	3.11	0.0297
	lexver	7.32833	1	7.32833	7.21	0.0085
	gr x lv	6.13986	3	2.04662	2.01	0.1166
1	ERROR	102.60303	101	1.01587		
	attr_type	39.00465	1	39.00465	34.26	0.0000
	attr x gr	12.10215	3	4.03405	3.54	0.0173
	attr x lv	1.85285	1	1.85285	1.63	0.2050
	attr x gr x lv	1.44293	3	0.48098	0.42	0.7373
2	ERROR	114.99969	101	1.13861		

Table 7-1: Rating task. TNS markers in Finite and Non-finite sentences. - ESL Speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	3477.44509	1	3477.44509	2197.05	0.0000
	grade	5.46849	3	1.82283	1.15	0.3321
	lexver	3.84323	1	3.84323	2.43	0.1223
	gr x lv	2.03927	3	0.67976	0.43	0.7323
1	ERROR	159.86047	101	1.58278		
	tns_type	93.45189	2	46.72595	47.48	0.0000
	tns x gr	45.78773	6	7.63129	7.75	0.0000
	tns x lv	8.19500	2	4.09750	4.16	0.0169
	tns x gr x lv	3.96886	6	0.66148	0.67	0.6723
2	ERROR	198.79766	202	0.98415		

Table 7-2: Rating task. Preference for sentences with TNS markers over sentences without TNS markers. - ESL Speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	106.92592	1	106.92592	33.54	0.0000
	grade	127.27114	3	42.42371	13.31	0.0000
	lexver	21.65516	1	21.65516	6.79	0.0105
	gr x lv	11.12994	3	3.70998	1.16	0.3274
1	ERROR	321.98178	101	3.18794		
	Tns	57.80992	1	57.80992	63.83	0.0000
	Tns x gr	3.36401	3	1.12134	1.24	0.2999
	Tns x lv	0.97662	1	0.97662	1.08	0.3015
	Tns x gr x lv	0.25888	3	0.08629	0.10	0.9625
2	ERROR	91.47040	101	0.90565		

Table 8-1: Rating task. [+/- Past] tense marking with different inflections types: past regular, past irregular and past tense marking on copula verbs. - ESL Speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	8274.30617	1	8274.30617	4099.53	0.0000
	grade	7.74035	3	2.58012	1.28	0.2859
	lexver	2.05725	1	2.05725	1.02	0.3151
	gr x lv	8.92732	3	2.97577	1.47	0.2260
1	ERROR	203.85361	101	2.01835		
	infl_type	366.95543	2	183.47771	109.21	0.0000
	infl x gr	43.36202	6	7.22700	4.30	0.0004
	infl x lv	1.77926	2	0.88963	0.53	0.5897
	infl x gr x lv	4.52572	6	0.75429	0.45	0.8452
2	ERROR	339.36126	202	1.68001		
	attr_type	129.77654	1	129.77654	69.28	0.0000
	attr x gr	9.58231	3	3.19410	1.71	0.1707
	attr x lv	0.25081	1	0.25081	0.13	0.7152
	attr x gr x lv	0.28014	3	0.09338	0.05	0.9852
3	ERROR	189.19141	101	1.87318		
	infl x attr	67.57893	2	33.78947	18.18	0.0000
	infl x attr x gr	35.12688	6	5.85448	3.15	0.0056
	infl x attr x lv	2.21096	2	1.10548	0.59	0.5526
	infl x attr x gr x lv	5.72327	6	0.95388	0.51	0.7979
4	ERROR	375.35469	202	1.85819		

Appendix: B.2.2 MAGNITUDE ESTIMATION TASK.

ANOVA TABLES FOR ESL GROUP

Table 1-1: Magnitude Estimation. Adverb Placement: - ESL Speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	2344.14301	1	2344.14301	1012.95	0.0000
	grade	19.38493	3	6.46164	2.79	0.0439
	lexver	5.09693	1	5.09693	2.20	0.1407
	gr x lv	5.67939	3	1.89313	0.82	0.4866
1	ERROR	252.24519	109	2.31418		
	attr_type	10.51483	1	10.51483	60.50	0.0000
	attr x gr	1.30904	3	0.43635	2.51	0.0625
	attr x lv	0.03062	1	0.03062	0.18	0.6755
	attr x gr x lv	0.98368	3	0.32789	1.89	0.1361
2	ERROR	18.94467	109	0.17380		

Table 2-1: Magnitude Estimation. Verb movement in Complement sentences - ESL Speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	3473.90419	1	3473.90419	1041.28	0.0000
	grade	39.97708	3	13.32569	3.99	0.0096
	lexver	21.45356	1	21.45356	6.43	0.0126
	gr x lv	16.25870	3	5.41957	1.62	0.1878
1	ERROR	366.98202	110	3.33620		
	sent_type	251.40029	3	83.80010	344.81	0.0000
	sent x gr	5.10351	9	0.56706	2.33	0.0147
	sent x lv	1.32699	3	0.44233	1.82	0.1433
	sent x gr x lv	1.44263	9	0.16029	0.66	0.7454
2	ERROR	80.20060	330	0.24303		

Table 2-2: Magnitude Estimation.Preference for grammatical complement sentence over ungrammatical Complement sentences - ESL Speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	274.08221	1	274.08221	297.94	0.0000
	grade	8.66207	3	2.88736	3.14	0.0283
	lexver	0.96632	1	0.96632	1.05	0.3077
	gr x lv	0.61697	3	0.20566	0.22	0.8798
1	ERROR	101.19028	110	0.91991		
	sent_type	182.87974	2	91.43987	366.41	0.0000
	sent x gr	2.93800	6	0.48967	1.96	0.0722
	sent x lv	1.08541	2	0.54270	2.17	0.1161
	sent x gr x lv	1.28839	6	0.21473	0.86	0.5248
2	ERROR	54.90303	220	0.24956		

Table 3-1: Magnitude Estimation.Overt/ null Referential and Expletive subjects in sentences with Thematic and Raising verbs. - ESL Speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	9679.46874	1	9679.46874	1154.65	0.0000
	grade	53.55522	3	17.85174	2.13	0.1007
	lexver	21.55266	1	21.55266	2.57	0.1117
	gr x lv	29.74863	3	9.91621	1.18	0.3197
1	ERROR	913.75242	109	8.38305		
	subject	15.80845	1	15.80845	118.83	0.0000
	sub x gr	0.42150	3	0.14050	1.06	0.3709
	sub x lv	0.02516	1	0.02516	0.19	0.6645
	sub x gr x lv	0.25050	3	0.08350	0.63	0.5987
2	ERROR	14.50051	109	0.13303		
	verb	0.69253	1	0.69253	6.17	0.0145
	vb x gr	0.67041	3	0.22347	1.99	0.1194
	vb x lv	0.00006	1	0.00006	0.00	0.9818
	vb x gr x lv	0.02589	3	0.00863	0.08	0.9723
3	ERROR	12.22524	109	0.11216		
	sub x vb	2.13167	1	2.13167	18.27	0.0000
	sub x vb x gr	0.53293	3	0.17764	1.52	0.2127
	sub x vb x lv	0.52046	1	0.52046	4.46	0.0370
	sub x vb x gr x lv	0.74368	3	0.24789	2.12	0.1013
4	ERROR	12.71724	109	0.11667		
	attrbute	5.87281	1	5.87281	55.22	0.0000
	attr x gr	4.90230	3	1.63410	15.37	0.0000
	attr x lv	0.10323	1	0.10323	0.97	0.3267
	attr x gr x lv	0.45404	3	0.15135	1.42	0.2400
5	ERROR	11.59199	109	0.10635		
	sub x attr	0.44910	1	0.44910	4.05	0.0467
	sub x attr x gr	0.46829	3	0.15610	1.41	0.2448
	sub x attr x lv	0.45908	1	0.45908	4.14	0.0444
	sub x attr x gr x lv	0.19852	3	0.06617	0.60	0.6188
6	ERROR	12.09678	109	0.11098		
	attr x vb	0.06390	1	0.06390	0.75	0.3877
	attr x vb x gr	0.32092	3	0.10697	1.26	0.2920
	attr x vb x lv	0.00299	1	0.00299	0.04	0.8515
	attr x vb x gr x lv	0.08011	3	0.02670	0.31	0.8150
7	ERROR	9.25867	109	0.08494		
	sub x attr x vb	0.79497	1	0.79497	6.99	0.0094
	subx attr x vb x gr	0.27098	3	0.09033	0.79	0.4997
	subx attr x vb x lv	0.15429	1	0.15429	1.36	0.2467
	sub x attr x vb x gr x lv	0.33935	3	0.11312	0.99	0.3983
8	ERROR	12.39623	109	0.11373		

Table 3-2 : Magnitude Estimation.Preference for sentences with a Referential subject over an expletive subject - ESL Speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	31.61689	1	31.61689	118.83	0.0000
	grade	0.84301	3	0.28100	1.06	0.3709
	lexver	0.05031	1	0.05031	0.19	0.6645
	gr x lv	0.50099	3	0.16700	0.63	0.5987
1	ERROR	29.00102	109	0.26606		
	verb	4.26335	1	4.26335	18.27	0.0000
	vb x gr	1.06586	3	0.35529	1.52	0.2127
	vb x lv	1.04092	1	1.04092	4.46	0.0370
	vb x gr x lv	1.48737	3	0.49579	2.12	0.1013
2	ERROR	25.43448	109	0.23334		
	attr_type	0.89819	1	0.89819	4.05	0.0467
	attr x gr	0.93658	3	0.31219	1.41	0.2448
	attr x lv	0.91816	1	0.91816	4.14	0.0444
	attr x gr x lv	0.39704	3	0.13235	0.60	0.6188
3	ERROR	24.19357	109	0.22196		
	attr x vb	1.58994	1	1.58994	6.99	0.0094
	attr x vb x gr	0.54195	3	0.18065	0.79	0.4997
	attr x vb x lv	0.30858	1	0.30858	1.36	0.2467
	attr x vb x gr x lv	0.67870	3	0.22623	0.99	0.3983
4	ERROR	24.79246	109	0.22745		

Table 3-3: Magnitude Estimation. Preference for sentences with Overt subjects over Null subjects. ESL Speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	17.96416	1	17.96416	62.94	0.0000
	grade	9.76780	3	3.25593	11.41	0.0000
	lexver	0.56856	1	0.56856	1.99	0.1610
	gr x lv	0.44045	3	0.14682	0.51	0.6732
1	ERROR	31.11179	109	0.28543		
	sub_type	0.01863	1	0.01863	0.13	0.7226
	sub x gr	1.02275	3	0.34092	2.32	0.0796
	sub x lv	0.43368	1	0.43368	2.95	0.0889
	sub x gr x lv	0.11375	3	0.03792	0.26	0.8557
2	ERROR	16.03863	109	0.14714		
	verb_type	0.20588	1	0.20588	1.06	0.3060
	vb x gr	0.67543	3	0.22514	1.16	0.3297
	vb x lv	0.04943	1	0.04943	0.25	0.6153
	vb x gr x lv	0.13108	3	0.04369	0.22	0.8792
3	ERROR	21.21406	109	0.19462		
	vb x sub	4.29382	1	4.29382	18.37	0.0000
	vb x sub x gr	0.47408	3	0.15803	0.68	0.5686
	vb x sub x lv	0.73130	1	0.73130	3.13	0.0797
	vb x sub x gr x lv	0.78908	3	0.26303	1.13	0.3422
4	ERROR	25.48119	109	0.23377		

Table 4-1: Magnitude Estimation. Number agrreement - Subject-Verb agreement with Singular and Plural subject NPs - ESL Speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	4746.85322	1	4746.85322	1036.63	0.0000
	grade	38.01513	3	12.67171	2.77	0.0452
	lexver	24.43923	1	24.43923	5.34	0.0228
	gr x lv	12.52391	3	4.17464	0.91	0.4379
1	ERROR	499.12308	109	4.57911		
	number	1.27093	1	1.27093	6.34	0.0133
	num x gr	0.52564	3	0.17521	0.87	0.4572
	num x lv	1.02565	1	1.02565	5.11	0.0257
	num x gr x lv	1.66770	3	0.55590	2.77	0.0450
3	ERROR	21.86119	109	0.20056		
	attr_type	9.77111	1	9.77111	31.41	0.0000
	attr x gr	3.07384	3	1.02461	3.29	0.0233
	attr x lv	1.00131	1	1.00131	3.22	0.0756
	attr x gr x lv	0.14443	3	0.04814	0.15	0.9264
2	ERROR	33.91233	109	0.31112		
	attr x num	0.20471	1	0.20471	1.21	0.2735
	attr x num x gr	0.31098	3	0.10366	0.61	0.6077
	attr x num x lv	0.00665	1	0.00665	0.04	0.8431
	attr x num x gr x lv	0.10278	3	0.03426	0.20	0.8943
4	ERROR	18.41896	109	0.16898		

Table 5-1: Magnitude Estimation.Person agreement. Subject-Verb agreement marking on Copula, Auxiliary and Thematic verbs. - ESL Speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	7408.73746	1	7408.73746	1120.10	0.0000
	grade	62.62398	3	20.87466	3.16	0.0277
	lexver	32.66625	1	32.66625	4.94	0.0283
	gr x lv	19.35705	3	6.45235	0.98	0.4071
1	ERROR	720.96647	109	6.61437		
	verb_type	0.69384	2	0.34692	1.83	0.1622
	vb x gr	1.01748	6	0.16958	0.90	0.4983
	vb x lv	1.06327	2	0.53164	2.81	0.0624
	vb x gr x lv	2.04085	6	0.34014	1.80	0.1006
3	ERROR	41.23618	218	0.18916		
	attr_type	12.91969	1	12.91969	35.35	0.0000
	attr x gr	4.46184	3	1.48728	4.07	0.0088
	attr x lv	0.68706	1	0.68706	1.88	0.1732
	attr x gr x lv	0.10869	3	0.03623	0.10	0.9603
2	ERROR	39.83982	109	0.36550		
	attr x vb	0.41707	2	0.20853	1.26	0.2864
	attr x vb x gr	1.12565	6	0.18761	1.13	0.3450
	attr x vb x lv	0.22140	2	0.11070	0.67	0.5140
	attr x vb x gr x lv	0.90060	6	0.15010	0.91	0.4919
4	ERROR	36.14774	218	0.16582		

Table 5-2: Magnitude Estimation. Preference for sentences with subject-verb agreement [+Person] marking over sentences without s-v agreement marking. ESL Speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	25.83938	1	25.83938	35.35	0.0000
	grade	8.92368	3	2.97456	4.07	0.0088
	lexver	1.37413	1	1.37413	1.88	0.1732
	gr x lv	0.21738	3	0.07246	0.10	0.9603
1	ERROR	79.67964	109	0.73101		
	verb_type	0.83413	2	0.41707	1.26	0.2864
	vb x gr	2.25131	6	0.37522	1.13	0.3450
	vb x lv	0.44280	2	0.22140	0.67	0.5140
	vb x gr x lv	1.80119	6	0.30020	0.91	0.4919
2	ERROR	72.29549	218	0.33163		

Table 5-3: Magnitude Estimation. Preference for one verb type over another- Person agreement marking. ESL Speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	0.18923	1	0.18923	0.38	0.5388
	grade	0.66713	3	0.22238	0.45	0.7201
	lexver	1.36069	1	1.36069	2.73	0.1011
	gr x lv	4.68120	3	1.56040	3.14	0.0285
1	ERROR	54.25175	109	0.49772		
	pref_type	9.54847	2	4.77424	12.36	0.0000
	pref x gr	3.82353	6	0.63726	1.65	0.1346
	pref x lv	0.74883	2	0.37441	0.97	0.3809
	pref x gr x lv	1.25571	6	0.20928	0.54	0.7759
2	ERROR	84.17844	218	0.38614		
	verb_type	0.31025	1	0.31025	1.77	0.1858
	vb x gr	0.41776	3	0.13925	0.80	0.4989
	vb x lv	0.04420	1	0.04420	0.25	0.6163
	vb x gr x lv	0.20752	3	0.06917	0.40	0.7567
3	ERROR	19.07628	109	0.17501		
	pref x vb	3.75248	2	1.87624	5.22	0.0061
	pref x vb x gr	5.59620	6	0.93270	2.60	0.0188
	pref x vb x lv	1.15281	2	0.57641	1.61	0.2032
	pref x vb x gr x lv	2.24849	6	0.37475	1.04	0.3980
4	ERROR	78.28274	218	0.35910		

Table 6-1: Magnitude Estimation. 3ps.sg. -s as an AGR marker, as a TNS marker. - ESL Speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	2440.70464	1	2440.70464	1042.43	0.0000
	grade	25.62554	3	8.54185	3.65	0.0149
	lexver	9.30687	1	9.30687	3.97	0.0487
	gr x lv	7.61863	3	2.53954	1.08	0.3588
1	ERROR	257.54870	110	2.34135		
	sen_type	0.83773	1	0.83773	2.26	0.1355
	sent x gr	2.02703	3	0.67568	1.82	0.1469
	sent x lv	0.20308	1	0.20308	0.55	0.4606
	sent x gr x lv	0.30313	3	0.10104	0.27	0.8449
2	ERROR	40.74028	110	0.37037		

Table 7-1: Magnitude Estimation. TNS markers in Finite and Non-finite sentences. ESL Speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	3314.82706	1	3314.82706	1039.80	0.0000
	grade	21.09066	3	7.03022	2.21	0.0915
	lexver	19.48240	1	19.48240	6.11	0.0150
	gr x lv	12.99048	3	4.33016	1.36	0.2594
1	ERROR	350.67557	110	3.18796		
	tns_type	11.01120	2	5.50560	27.70	0.0000
	tns x gr	5.78582	6	0.96430	4.85	0.0001
	tns x lv	5.14713	2	2.57356	12.95	0.0000
	tns x gr x lv	0.79661	6	0.13277	0.67	0.6756
2	ERROR	43.72344	220	0.19874		

Table 7-2: Magnitude Estimation. Preference for sentences with TNS markers over sentences without TNS markers. - ESL Speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	9.46176	1	9.46176	14.85	0.0002
	grade	12.45555	3	4.15185	6.52	0.0004
	lexver	11.56095	1	11.56095	18.14	0.0000
	gr x lv	1.40605	3	0.46868	0.74	0.5330
1	ERROR	70.09456	110	0.63722		
	pref_tns	7.85728	1	7.85728	42.45	0.0000
	pref x gr	1.63397	3	0.54466	2.94	0.0362
	pref x lv	1.29348	1	1.29348	6.99	0.0094
	pref x gr x lv	0.32793	3	0.10931	0.59	0.6224
2	ERROR	20.35858	110	0.18508		

Table 8-1: Magnitude Estimation. [+/- Past] tense marking with different inflections types: past regular, past irregular and past tense marking on copula verbs. - ESL Speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	7202.13856	1	7202.13856	1024.41	0.0000
	grade	52.29802	3	17.43267	2.48	0.0649
	lexver	10.07998	1	10.07998	1.43	0.2337
	gr x lv	21.51386	3	7.17129	1.02	0.3867
1	ERROR	773.35703	110	7.03052		
	infl_type	33.65393	2	16.82696	38.22	0.0000
	infl x gr	2.61607	6	0.43601	0.99	0.4326
	infl x lv	0.82452	2	0.41226	0.94	0.3936
	infl x gr x lv	1.60310	6	0.26718	0.61	0.7247
2	ERROR	96.84891	220	0.44022		
	attr_type	9.84408	1	9.84408	23.04	0.0000
	attr x gr	1.24402	3	0.41467	0.97	0.4095
	attr x lv	3.53515	1	3.53515	8.27	0.0048
	attr x gr x lv	0.09019	3	0.03006	0.07	0.9757
3	ERROR	47.00522	110	0.42732		
	infl x attr	7.11539	2	3.55769	8.66	0.0002
	infl x attr x gr	1.32904	6	0.22151	0.54	0.7779
	infl x attr a lv	1.02023	2	0.51011	1.24	0.2908
	infl x attr x gr x lv	2.18931	6	0.36488	0.89	0.5041
4	ERROR	90.34517	220	0.41066		

Appendix B.3.1: RATING TASK.

ANOVA TABLES FOR NEAR-NATIVE VS. NATIVE SPEAKERS

Table 1-1: Rating. Adverb Placement: - Near-native vs. Native speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	921.42609	1	921.42609	788.18	0.0000
	grade	0.42182	1	0.42182	0.36	0.5520
	lexver	0.00468	1	0.00468	0.00	0.9499
	gr x lv	0.00397	1	0.00397	0.00	0.9539
1	ERROR	39.74812	34	1.16906		
	attr_type	51.08648	1	51.08648	56.22	0.0000
	attr x gr	0.22303	1	0.22303	0.25	0.6235
	attr x lv	0.00006	1	0.00006	0.00	0.9936
	attr x gr x lv	0.83150	1	0.83150	0.92	0.3455
2	ERROR	30.89428	34	0.90866		

Table 2-1: Rating. Verb movement in Complement sentences - Near-native vs. Native

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	903.42661	1	903.42661	622.26	0.0000
	grade	0.39970	1	0.39970	0.28	0.6032
	lexver	9.12394	1	9.12394	6.28	0.0171
	gr x lv	0.39503	1	0.39503	0.27	0.6053
1	ERROR	49.36248	34	1.45184		
	sent_type	173.92476	3	57.97492	86.29	0.0000
	sent x gr	5.33021	3	1.77674	2.64	0.0532
	sent x lv	3.36736	3	1.12245	1.67	0.1780
	sent x gr x lv	1.73283	3	0.57761	0.86	0.4647
2	ERROR	68.53265	102	0.67189		

Table 2-2: Rating. Preference for grammatical complement sentence over ungrammatical Complement sentences - Near-native vs. Native speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	693.58981	1	693.58981	282.25	0.0000
	grade	16.38087	1	16.38087	6.67	0.0143
	lexver	9.97755	1	9.97755	4.06	0.0519
	gr x lv	0.15729	1	0.15729	0.06	0.8018
1	ERROR	83.55159	34	2.45740		
	sent_type	0.52731	2	0.26366	0.38	0.6878
	sent x gr	1.23499	2	0.61750	0.88	0.4189
	sent x lv	0.87297	2	0.43649	0.62	0.5394
	sent x gr x lv	1.69350	2	0.84675	1.21	0.3050
2	ERROR	47.64475	68	0.70066		

Table 3-1: Rating. Overt/ null Referential and Expletive subjects in sentences with Thematic and Raising verbs. - Near-native vs. Native speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	3646.43461	1	3646.43461	3118.87	0.0000
	grade	0.35739	1	0.35739	0.31	0.5840
	lexver	0.75313	1	0.75313	0.64	0.4278
	gr x lv	0.58070	1	0.58070	0.50	0.4858
1	ERROR	39.75124	34	1.16915		
	sub_type	12.66960	1	12.66960	28.60	0.0000
	sub x gr	0.27615	1	0.27615	0.62	0.4353
	sub x lv	3.67586	1	3.67586	8.30	0.0068
	sub x gr x lv	0.62134	1	0.62134	1.40	0.2445
2	ERROR	15.06406	34	0.44306		
	verb_type	1.65033	1	1.65033	1.89	0.1780
	vb x gr	0.01313	1	0.01313	0.02	0.9031
	vb x lv	0.11161	1	0.11161	0.13	0.7228
	vb x gr x lv	0.26918	1	0.26918	0.31	0.5822
3	ERROR	29.66040	34	0.87236		
	sub x vb	1.13823	1	1.13823	2.33	0.1358
	sub x vb x gr	0.01634	1	0.01634	0.03	0.8558
	sub x vb x lv	0.13183	1	0.13183	0.27	0.6064
	sub x vb x gr x lv	0.02363	1	0.02363	0.05	0.8271
4	ERROR	16.57665	34	0.48755		
	attr_type	158.03864	1	158.03864	170.59	0.0000
	attr x gr	4.82250	1	4.82250	5.21	0.0289
	attr x lv	0.20147	1	0.20147	0.22	0.6440
	attr x gr x lv	0.19056	1	0.19056	0.21	0.6530
5	ERROR	31.49901	34	0.92644		
	sub x attr	3.16218	1	3.16218	4.38	0.0438
	sub x attr x gr	1.38004	1	1.38004	1.91	0.1756
	sub x attr x lv	2.68139	1	2.68139	3.72	0.0622
	sub x attr x gr x lv	0.00237	1	0.00237	0.00	0.9546
6	ERROR	24.52522	34	0.72133		
	vb x attr	0.00121	1	0.00121	0.00	0.9678
	vb x attr x gr	0.00186	1	0.00186	0.00	0.9601
	vb x attr x lv	0.69420	1	0.69420	0.94	0.3381
	vb x attr x gr x lv	0.33960	1	0.33960	0.46	0.5014
7	ERROR	25.00013	34	0.73530		
	sub x vb x attr	0.23710	1	0.23710	0.61	0.4412
	sub x vb x attr x gr	0.87314	1	0.87314	2.24	0.1440
	sub x vb x attr x lv	1.00609	1	1.00609	2.58	0.1177
	sub x vb x attr x gr x lv	1.25911	1	1.25911	3.22	0.0814
8	ERROR	13.27635	34	0.39048		

Table 3-2 : Rating. Preference for sentences with a Referential subject over an expletive subject - Near-native vs. Native speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	25.33921	1	25.33921	28.60	0.0000
	grade	0.55230	1	0.55230	0.62	0.4353
	lexver	7.35171	1	7.35171	8.30	0.0068
	gr x lv	1.24267	1	1.24267	1.40	0.2445
1	ERROR	30.12813	34	0.88612		
	verb_type	2.27646	1	2.27646	2.33	0.1358
	vb x gr	0.03267	1	0.03267	0.03	0.8558
	vb x lv	0.26366	1	0.26366	0.27	0.6064
	vb x gr x lv	0.04725	1	0.04725	0.05	0.8271
2	ERROR	33.15331	34	0.97510		
	attr_type	6.32437	1	6.32437	4.38	0.0438
	attr x gr	2.76007	1	2.76007	1.91	0.1756
	attr x lv	5.36277	1	5.36277	3.72	0.0622
	attr x gr x lv	0.00474	1	0.00474	0.00	0.9546
3	ERROR	49.05045	34	1.44266		
	vb x attr	0.47419	1	0.47419	0.61	0.4412
	vb x aattr x gr	1.74629	1	1.74629	2.24	0.1440
	vb x attr x lv	2.01219	1	2.01219	2.58	0.1177
	vb x attr x gr x lv	2.51822	1	2.51822	3.22	0.0814
4	ERROR	26.55269	34	0.78096		

Table 3-3: Rating. Preference for sentences with Overt subjects over Null subjects
Near-native vs. Native speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	304.81252	1	304.81252	119.33	0.0000
	grade	14.41648	1	14.41648	5.64	0.0233
	lexver	3.73717	1	3.73717	1.46	0.2348
	gr x lv	3.32283	1	3.32283	1.30	0.2620
1	ERROR	86.85198	34	2.55447		
	sub_type	4.81868	1	4.81868	2.43	0.1279
	sub x gr	0.94106	1	0.94106	0.48	0.4951
	sub x lv	1.03502	1	1.03502	0.52	0.4745
	sub x gr x lv	1.29202	1	1.29202	0.65	0.4247
2	ERROR	67.28444	34	1.97895		
	verb_type	0.13611	1	0.13611	0.25	0.6175
	vb x gr	0.39716	1	0.39716	0.74	0.3953
	vb x lv	0.01443	1	0.01443	0.03	0.8706
	vb x gr x lv	0.14545	1	0.14545	0.27	0.6057
3	ERROR	18.21562	34	0.53575		
	sub x vb	0.13611	1	0.13611	0.25	0.6175
	sub x vb x gr	0.39716	1	0.39716	0.74	0.3953
	sub x vb x lv	0.01443	1	0.01443	0.03	0.8706
	sub x vb x gr x lv	0.14545	1	0.14545	0.27	0.6057
4	ERROR	18.21562	34	0.53575		

Table 4-1: Rating. Number agreement - Subject-Verb agreement with Singular and Plural subject NPs - Near-native vs. Native speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	1535.40800	1	1535.40800	1128.41	0.0000
	grade	0.61506	1	0.61506	0.45	0.5059
	lexver	2.85608	1	2.85608	2.10	0.1566
	gr x lv	0.14209	1	0.14209	0.10	0.7486
1	ERROR	46.26314	34	1.36068		
	number	0.00238	1	0.00238	0.00	0.9544
	num x gr	0.01296	1	0.01296	0.02	0.8937
	num x lv	0.00024	1	0.00024	0.00	0.9854
	num x gr x lv	0.14382	1	0.14382	0.20	0.6567
2	ERROR	24.32248	34	0.71537		
	attr_type	165.89154	1	165.89154	151.50	0.0000
	attr x gr	3.14874	1	3.14874	2.88	0.0991
	attr x lv	0.36522	1	0.36522	0.33	0.5674
	attr x gr x lv	0.12100	1	0.12100	0.11	0.7416
3	ERROR	37.23017	34	1.09501		
	num x attr	0.99727	1	0.99727	3.29	0.0787
	num x attr x gr	0.00216	1	0.00216	0.01	0.9333
	num x attr x lv	0.02643	1	0.02643	0.09	0.7697
	num x attr x gr x lv	0.77883	1	0.77883	2.57	0.1185
4	ERROR	10.32083	34	0.30355		

Table 5-1: Rating. Person agreement. Subject-Verb agreement marking on Copula, Auxiliary and Thematic verbs. - Near-native vs. Native speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	2313.39364	1	2313.39364	1554.62	0.0000
	grade	4.00127	1	4.00127	2.69	0.1103
	lexver	3.79964	1	3.79964	2.55	0.1193
	gr x lv	3.32785	1	3.32785	2.24	0.1440
1	ERROR	50.59461	34	1.48808		
	verb_type	0.51148	2	0.25574	0.55	0.5778
	vb x gr	9.12077	2	4.56039	9.86	0.0002
	vb x lv	0.02974	2	0.01487	0.03	0.9684
	vb x gr x lv	0.66226	2	0.33113	0.72	0.4923
2	ERROR	31.44573	68	0.46244		
	attr_type	246.91809	1	246.91809	174.68	0.0000
	attr x gr	7.08025	1	7.08025	5.01	0.0319
	attr x lv	0.64177	1	0.64177	0.45	0.5050
	attr x gr x lv	0.00379	1	0.00379	0.00	0.9590
3	ERROR	48.06103	34	1.41356		
	vb x attr	2.07450	2	1.03725	1.77	0.1774
	vb x attr x gr	1.49200	2	0.74600	1.28	0.2858
	vb x attr x lv	0.35259	2	0.17630	0.30	0.7407
	vb x attr x gr x lv	0.82841	2	0.41421	0.71	0.4960
4	ERROR	39.76026	68	0.58471		

Table 5-2: Rating. Preference for one verb type over another- Person agreement marking - Near-native vs. Native speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	27.33416	1	27.33416	23.32	0.0000
	grade	28.67627	1	28.67627	24.46	0.0000
1	ERROR	42.20202	36	1.17228		
	pref_type	33.94207	2	16.97104	16.34	0.0000
	pref x gr	1.74471	2	0.87235	0.84	0.4360
2	ERROR	74.80135	72	1.03891		
	attr_type	25.90673	1	25.90673	29.10	0.0000
	attr x gr	4.72252	1	4.72252	5.30	0.0272
3	ERROR	32.05051	36	0.89029		
	pref x attr	80.79229	2	40.39614	34.10	0.0000
	pref x attr x gr	0.51597	2	0.25799	0.22	0.8049
4	ERROR	85.30640	72	1.18481		

Table 5-3: Rating. Preference for sentences with subject-verb agreement [+Person] marking over sentences without s-v agreement marking. Near-native vs. Native speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	0.14949	1	0.14949	0.12	0.7287
	grade	5.77111	1	5.77111	4.72	0.0368
	lexver	0.99918	1	0.99918	0.82	0.3722
	gr x lv	0.51364	1	0.51364	0.42	0.5211
1	ERROR	41.54042	34	1.22178		
	verb_type	10.76961	2	5.38481	2.87	0.0636
	vb x gr	9.73974	2	4.86987	2.60	0.0820
	vb x lv	1.06359	2	0.53180	0.28	0.7541
	vb x gr x lv	15.20489	2	7.60245	4.05	0.0217
2	ERROR	127.57534	68	1.87611		

Table 6-1: Rating. 3ps.sg. -s as an AGR marker, as a TNS marker. Near-native vs. Native speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	746.41922	1	746.41922	671.47	0.0000
	grade	3.73446	1	3.73446	3.36	0.0756
	lexver	3.64902	1	3.64902	3.28	0.0789
	gr x lv	0.38282	1	0.38282	0.34	0.5612
1	ERROR	37.79493	34	1.11162		
	attr_type	60.54682	1	60.54682	46.30	0.0000
	attr x gr	2.70591	1	2.70591	2.07	0.1594
	attr x lv	0.05159	1	0.05159	0.04	0.8437
	attr x gr x lv	0.96537	1	0.96537	0.74	0.3963
2	ERROR	44.46262	34	1.30772		

Table 7-1: Rating. TNS markers in Finite and Non-finite sentences.
Near-native vs. Native speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	1164.85844	1	1164.85844	1140.45	0.0000
	grade	0.79692	1	0.79692	0.78	0.3833
	lexver	0.01394	1	0.01394	0.01	0.9077
	gr x lv	0.66474	1	0.66474	0.65	0.4254
1	ERROR	34.72762	34	1.02140		
	tns_type	118.57488	2	59.28744	88.65	0.0000
	tns x gr	11.10715	2	5.55358	8.30	0.0006
	tns x lv	7.58714	2	3.79357	5.67	0.0053
	tns x gr x lv	1.43202	2	0.71601	1.07	0.3485
2	ERROR	45.47928	68	0.66881		

Table 7-2: Rating. Preference for sentences with TNS markers over sentences without TNS markers. Near-native vs. Native speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	353.74680	1	353.74680	145.60	0.0000
	grade	8.41896	1	8.41896	3.47	0.0713
	lexver	14.04677	1	14.04677	5.78	0.0218
	gr x lv	0.30761	1	0.30761	0.13	0.7242
1	ERROR	82.60649	34	2.42960		
	tns_type	0.65928	1	0.65928	1.25	0.2715
	tns x gr	8.30083	1	8.30083	15.73	0.0004
	tns x lv	2.90489	1	2.90489	5.50	0.0249
	tns x gr x lv	1.32948	1	1.32948	2.52	0.1217
2	ERROR	17.94378	34	0.52776		

Table 8-1: Rating. [+/- Past] tense marking with different inflections types: past regular, past irregular and past tense marking on copula verbs. Near-native Vs. Native speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	2184.78985	1	2184.78985	1960.51	0.0000
	grade	0.00038	1	0.00038	0.00	0.9855
	lexver	0.40578	1	0.40578	0.36	0.5502
	gr x lv	0.56368	1	0.56368	0.51	0.4818
1	ERROR	37.88956	34	1.11440		
	infl_type	247.22834	2	123.61417	138.55	0.0000
	infl x gr	2.54769	2	1.27384	1.43	0.2469
	infl x lv	1.75181	2	0.87591	0.98	0.3799
	infl x gr x lv	0.70416	2	0.35208	0.39	0.6755
2	ERROR	60.66960	68	0.89220		
	attr_type	64.31746	1	64.31746	43.67	0.0000
	attr x gr	0.02870	1	0.02870	0.02	0.8898
	attr x lv	0.01874	1	0.01874	0.01	0.9108
	attr x gr x lv	0.06284	1	0.06284	0.04	0.8376
3	ERROR	50.07271	34	1.47273		
	infl x attr	74.09807	2	37.04903	29.54	0.0000
	infl x attr x gr	1.29792	2	0.64896	0.52	0.5984
	infl x attr x lv	1.06819	2	0.53410	0.43	0.6550
	infl x attr x gr x lv	0.95369	2	0.47684	0.38	0.6852
4	ERROR	85.29963	68	1.25441		

Appendix B.3.2: MAGNITUDE ESTIMATION TASK.

ANOVA TABLES FOR NEAR-NATIVE VS. NATIVE SPEAKERS

Table 1-1: Magnitude Esimation. Adverb Placement: - Near-native Vs. Native speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	535.70368	1	535.70368	272.28	0.0000
	grade	0.20296	1	0.20296	0.10	0.7500
	lexver	0.17237	1	0.17237	0.09	0.7690
	gr x lv	5.31237	1	5.31237	2.70	0.1096
1	ERROR	66.89514	34	1.96750		
	attr_type	5.50057	1	5.50057	34.50	0.0000
	attr x gr	0.05112	1	0.05112	0.32	0.5749
	attr x lv	0.01547	1	0.01547	0.10	0.7573
	attr x gr x lv	0.25369	1	0.25369	1.59	0.2157
2	ERROR	5.42089	34	0.15944		

Table 2-1: Magnitude Estimation.Verb movement in Complement sentences. Near-native Vs. Native speakers

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
MEAN	627.51812	1	627.51812	180.46	0.0000
grade	0.89030	1	0.89030	0.26	0.6161
lexver	4.92555	1	4.92555	1.42	0.2422
gr x lv	6.60798	1	6.60798	1.90	0.1770
1ERROR	118.22829	34	3.47730		
sent_type	60.43828	3	20.14609	62.74	0.0000
sent x gr	0.77764	3	0.25921	0.81	0.4927
sent x lv	0.63806	3	0.21269	0.66	0.5770
sent x gr x lv	0.77670	3	0.25890	0.81	0.4932
2ERROR	32.75049	102	0.32108		

Table 2-2: Magnitude Estimation. Preference for grammatical complement sentence over ungrammatical Complement sentences - Near-native Vs. Native speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	138.24619	1	138.24619	95.64	0.0000
	grade	1.19854	1	1.19854	0.83	0.3689
	lexver	0.67681	1	0.67681	0.47	0.4984
	gr x lv	0.13552	1	0.13552	0.09	0.7613
1	ERROR	49.14527	34	1.44545		
	sent_type	25.87674	2	12.93837	42.99	0.0000
	sent x gr	0.47801	2	0.23900	0.79	0.4561
	sent x lv	0.46886	2	0.23443	0.78	0.4629
	sent x gr x lv	0.74282	2	0.37141	1.23	0.2975
2	ERROR	20.46417	68	0.30094		

Table 3-1: Magnitude Estimation. Overt/ null Referential and Expletive subjects in sentences with Thematic and Raising verbs. - Near-native Vs. Native speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	2083.00029	1	2083.00029	271.69	0.0000
	grade	6.33075	1	6.33075	0.83	0.3699
	lexver	3.33488	1	3.33488	0.43	0.5140
	gr x lv	12.78867	1	12.78867	1.67	0.2052
1	ERROR	260.66988	34	7.66676		
	subject	5.64937	1	5.64937	41.80	0.0000
	sub x gr	0.49176	1	0.49176	3.64	0.0649
	sub x lv	0.44421	1	0.44421	3.29	0.0787
	sub x gr x lv	0.15845	1	0.15845	1.17	0.2865
2	ERROR	4.59527	34	0.13515		
	verb	1.28032	1	1.28032	13.94	0.0007
	vb x gr	0.00002	1	0.00002	0.00	0.9883
	vb x lv	0.00091	1	0.00091	0.01	0.9213
	vb x gr x lv	0.00136	1	0.00136	0.01	0.9037
3	ERROR	3.12220	34	0.09183		
	sub x vb	0.26928	1	0.26928	4.22	0.0478
	sub x vb x gr	0.01507	1	0.01507	0.24	0.6302
	sub x vb x lv	0.02256	1	0.02256	0.35	0.5562
	sub x vb x gr x lv	0.00819	1	0.00819	0.13	0.7225
4	ERROR	2.17166	34	0.06387		
	attribute	21.78270	1	21.78270	49.63	0.0000
	attr x gr	2.05662	1	2.05662	4.69	0.0375
	attr x lv	0.00089	1	0.00089	0.00	0.9643
	attr x gr x lv	0.53657	1	0.53657	1.22	0.2766
5	ERROR	14.92274	34	0.43890		
	sub x attr	2.94578	1	2.94578	18.41	0.0001
	sub x attr x gr	0.98507	1	0.98507	6.16	0.0182
	sub x attr x lv	0.32693	1	0.32693	2.04	0.1620
	subx attr x gr x lv	0.31070	1	0.31070	1.94	0.1725
6	ERROR	5.43933	34	0.15998		
	attr x vb	0.60272	1	0.60272	9.02	0.0050
	attr x vb x gr	0.20864	1	0.20864	3.12	0.0863
	attr x vb x lv	0.00010	1	0.00010	0.00	0.9686
	attr x vb x gr x lv	0.03284	1	0.03284	0.49	0.4882
7	ERROR	2.27312	34	0.06686		
	sub x attr x vb	0.31321	1	0.31321	5.79	0.0217
	subx attr x vb x gr	0.00209	1	0.00209	0.04	0.8454
	subx attr x vb x lv	0.06125	1	0.06125	1.13	0.2948
	sub x attr x vb x gr x lv	0.00597	1	0.00597	0.11	0.7417
8	ERROR	1.83911	34	0.05409		

Table 3-2 : Magnitude Estimation. Preference for sentences with a Referential subject over an expletive subject. Near-native vs. Native speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	11.29873	1	11.29873	41.80	0.0000
	grade	0.98352	1	0.98352	3.64	0.0649
	lexver	0.88842	1	0.88842	3.29	0.0787
	gr x lv	0.31690	1	0.31690	1.17	0.2865
1	ERROR	9.19054	34	0.27031		
	verb	0.53856	1	0.53856	4.22	0.0478
	vb x gr	0.03014	1	0.03014	0.24	0.6302
	vb x lv	0.04513	1	0.04513	0.35	0.5562
	vb x gr x lv	0.01638	1	0.01638	0.13	0.7225
3	ERROR	4.34331	34	0.12774		
	attr_type	5.89155	1	5.89155	18.41	0.0001
	attr x gr	1.97015	1	1.97015	6.16	0.0182
	attr x lv	0.65386	1	0.65386	2.04	0.1620
	attr x gr x lv	0.62140	1	0.62140	1.94	0.1725
2	ERROR	10.87866	34	0.31996		
	attr x vb	0.62642	1	0.62642	5.79	0.0217
	attr x vb x gr	0.00418	1	0.00418	0.04	0.8454
	attr x vb x lv	0.12250	1	0.12250	1.13	0.2948
	attr x vb x gr x lv	0.01195	1	0.01195	0.11	0.7417
4	ERROR	3.67822	34	0.10818		

Table 3-3: Magnitude Estimation. Preference for sentences with Overt subjects over Null subjects. Near-native vs.Native speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	58.77106	1	58.77106	47.57	0.0000
	grade	7.21732	1	7.21732	5.84	0.0212
	lexver	0.06499	1	0.06499	0.05	0.8200
	gr x lv	0.40806	1	0.40806	0.33	0.5693
1	ERROR	42.00763	34	1.23552		
	sub_type	1.85350	1	1.85350	15.68	0.0004
	sub x gr	0.55536	1	0.55536	4.70	0.0373
	sub x lv	0.26156	1	0.26156	2.21	0.1461
	sub x gr x lv	0.15301	1	0.15301	1.29	0.2633
2	ERROR	4.02023	34	0.11824		
	verb_type	0.00103	1	0.00103	0.01	0.9373
	vb x gr	0.00015	1	0.00015	0.00	0.9757
	vb x lv	0.07992	1	0.07992	0.49	0.4898
	vb x gr x lv	0.01984	1	0.01984	0.12	0.7301
3	ERROR	5.57302	34	0.16391		
	vb x sub	3.44952	1	3.44952	23.57	0.0000
	vb x sub x gr	0.35257	1	0.35257	2.41	0.1299
	vb x sub x lv	0.41885	1	0.41885	2.86	0.0998
	vb x sub x gr x lv	0.08285	1	0.08285	0.57	0.4570
4	ERROR	4.97511	34	0.14633		

Table 4-1: Magnitude Estimation. Number agreement - Subject-Verb agreement with Singular and Plural subject NPs - Near-native Vs. Native speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	976.61424	1	976.61424	225.32	0.0000
	grade	1.40596	1	1.40596	0.32	0.5727
	lexver	6.11072	1	6.11072	1.41	0.2433
	gr x lv	4.90514	1	4.90514	1.13	0.2949
1	ERROR	147.36633	34	4.33430		
	number	0.18056	1	0.18056	1.30	0.2628
	num x gr	0.13284	1	0.13284	0.95	0.3356
	num x lv	0.06953	1	0.06953	0.50	0.4846
	num x gr x lv	0.44376	1	0.44376	3.19	0.0832
2	ERROR	4.73520	34	0.13927		
	attr_type	15.97783	1	15.97783	32.09	0.0000
	attr x gr	0.62962	1	0.62962	1.26	0.2687
	attr x lv	0.53128	1	0.53128	1.07	0.3089
	attr x gr x lv	0.00253	1	0.00253	0.01	0.9436
3	ERROR	16.92947	34	0.49793		
	attr x num	0.05298	1	0.05298	0.45	0.5073
	attr x num x gr	0.11378	1	0.11378	0.96	0.3330
	attr x num x lv	0.25098	1	0.25098	2.13	0.1539
	attr x num x gr x lv	0.07957	1	0.07957	0.67	0.4172
4	ERROR	4.01111	34	0.11797		

Table 5-1: Magnitude Estimation. Person agreement. Subject-Verb agreement marking on Copula, Auxiliary and Thematic verbs. - Near-native Vs. Native speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	1454.02015	1	1454.02015	221.85	0.0000
	grade	3.85952	1	3.85952	0.59	0.4481
	lexver	10.55910	1	10.55910	1.61	0.2130
	gr x lv	7.75623	1	7.75623	1.18	0.2843
1	ERROR	222.83417	34	6.55395		
	verb_type	0.30252	2	0.15126	0.82	0.4443
	vb x gr	0.29327	2	0.14663	0.80	0.4553
	vb x lv	0.10626	2	0.05313	0.29	0.7504
	vb x gr x lv	0.77915	2	0.38958	2.11	0.1286
2	ERROR	12.52803	68	0.18424		
	attr_type	23.46043	1	23.46043	33.78	0.0000
	attr x gr	1.25023	1	1.25023	1.80	0.1886
	attr x lv	0.21574	1	0.21574	0.31	0.5809
	attr x gr x lv	0.01212	1	0.01212	0.02	0.8957
3	ERROR	23.61231	34	0.69448		
	attr x vb	0.45329	2	0.22664	1.40	0.2534
	attr x vb x gr	0.01236	2	0.00618	0.04	0.9625
	attr x vb x lv	0.15946	2	0.07973	0.49	0.6131
	attr x vb x gr x lv	0.45484	2	0.22742	1.41	0.2522
4	ERROR	11.00180	68	0.16179		

Table 5-3: Magnitude Estimation. Preference for one verb type over another- Person agreement marking Near-native Vs. Native speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	0.84966	1	0.84966	1.33	0.2566
	grade	1.08168	1	1.08168	1.70	0.2017
	lexver	0.11713	1	0.11713	0.18	0.6710
	gr x lv	1.41828	1	1.41828	2.22	0.1452
1	ERROR	21.69522	34	0.63809		
	pref_type	8.57348	2	4.28674	14.06	0.0000
	pref x gr	0.02983	2	0.01491	0.05	0.9523
	pref x lv	0.17280	2	0.08640	0.28	0.7540
	pref x gr x lv	0.92897	2	0.46449	1.52	0.2252
2	ERROR	20.72601	68	0.30479		
	verb_type	0.68283	1	0.68283	4.26	0.0466
	vb x gr	0.05669	1	0.05669	0.35	0.5558
	vb x lv	0.00831	1	0.00831	0.05	0.8212
	vb x gr x lv	0.29662	1	0.29662	1.85	0.1825
3	ERROR	5.44594	34	0.16017		
	pref x vb	10.16394	2	5.08197	12.13	0.0000
	pref x vb x gr	0.38375	2	0.19188	0.46	0.6344
	pref x vb x lv	0.56678	2	0.28339	0.68	0.5117
	pref x vb x gr x lv	1.15514	2	0.57757	1.38	0.2588
4	ERROR	28.47937	68	0.41881		

Table 5-2: Magnitude Estimation. Preference for sentences with subject-verb agreement [+Person] marking over sentences without s-v agreement marking. Near-native Vs. Native speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	46.92086	1	46.92086	33.78	0.0000
	grade	2.50046	1	2.50046	1.80	0.1886
	lexver	0.43148	1	0.43148	0.31	0.5809
	gr x lv	0.02425	1	0.02425	0.02	0.8957
1	ERROR	47.22462	34	1.38896		
	verb_type	0.90658	2	0.45329	1.40	0.2534
	vb x gr	0.02472	2	0.01236	0.04	0.9625
	vb x lv	0.31891	2	0.15946	0.49	0.6131
	vb x gr x lv	0.90967	2	0.45484	1.41	0.2522
2	ERROR	22.00361	68	0.32358		

Table 6-1: Magnitude Estimation. 3ps.sg. -s as an AGR marker, as a TNS marker. Near-native Vs. Native speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	543.06612	1	543.06612	236.79	0.0000
	grade	1.51194	1	1.51194	0.66	0.4225
	lexver	3.97733	1	3.97733	1.73	0.1967
	gr x lv	1.27224	1	1.27224	0.55	0.4615
1	ERROR	77.97634	34	2.29342		
	sen_type	4.83946	1	4.83946	12.95	0.0010
	sent x gr	0.24995	1	0.24995	0.67	0.4192
	sent x lv	0.95913	1	0.95913	2.57	0.1185
	sent x gr x lv	0.07351	1	0.07351	0.20	0.6602
2	ERROR	12.71007	34	0.37383		

Table 7-1: Magnitude Estimation. TNS markers in Finite and Non-finite sentences. Near-native Vs. Native speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	681.08606	1	681.08606	202.73	0.0000
	grade	1.74073	1	1.74073	0.52	0.4766
	lexver	1.76567	1	1.76567	0.53	0.4734
	gr x lv	10.91643	1	10.91643	3.25	0.0803
1	ERROR	114.22449	34	3.35954		
	tns_type	12.40140	2	6.20070	22.00	0.0000
	tns x gr	1.90631	2	0.95315	3.38	0.0398
	tns x lv	1.88262	2	0.94131	3.34	0.0413
	tns x gr x lv	0.03876	2	0.01938	0.07	0.9336
2	ERROR	19.16582	68	0.28185		

Table 7-2: Magnitude Estimation. Preference for sentences with TNS markers over sentences without TNS markers. Near-native Vs. Native speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	33.64347	1	33.64347	26.41	0.0000
	grade	1.33967	1	1.33967	1.05	0.3124
	lexver	4.15376	1	4.15376	3.26	0.0798
	gr x lv	0.10680	1	0.10680	0.08	0.7739
1	ERROR	43.31186	34	1.27388		
	pref_tns	1.18691	1	1.18691	8.53	0.0062
	pref x gr	1.45975	1	1.45975	10.50	0.0027
	pref x lv	0.49803	1	0.49803	3.58	0.0670
	pref x gr x lv	0.00316	1	0.00316	0.02	0.8811
2	ERROR	4.72853	34	0.13907		

Table 8-1: Magnitude Estimation. [+/- Past] tense marking with different inflections types: past regular, past irregular and past tense marking on copula verbs. Near-native Vs. Native speakers

	SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	TAIL PROB.
	MEAN	1505.55543	1	1505.55543	234.19	0.0000
	grade	5.01346	1	5.01346	0.78	0.3834
	lexver	6.37643	1	6.37643	0.99	0.3263
	gr x lv	4.51713	1	4.51713	0.70	0.4078
1	ERROR	218.57759	34	6.42875		
	infl_type	20.47222	2	10.23611	18.58	0.0000
	infl x gr	0.12666	2	0.06333	0.11	0.8916
	infl x lv	0.44396	2	0.22198	0.40	0.6699
	infl x gr x lv	0.72211	2	0.36105	0.66	0.5225
2	ERROR	37.46105	68	0.55090		
	attr_type	9.30658	1	9.30658	21.04	0.0001
	attr x gr	0.20842	1	0.20842	0.47	0.4971
	attr x lv	0.81001	1	0.81001	1.83	0.1849
	attr x gr x lv	0.00045	1	0.00045	0.00	0.9747
3	ERROR	15.04188	34	0.44241		
	infl x attr	5.83029	2	2.91514	5.98	0.0040
	infl x attr x gr	0.10642	2	0.05321	0.11	0.8967
	infl x attr x lv	0.89946	2	0.44973	0.92	0.4024
	infl x attr x gr x lv	1.45683	2	0.72842	1.49	0.2317
4	ERROR	33.14533	68	0.48743		

Appendix C: Tables and graphs from the Magnitude Estimation Task

Table 7-1 : Mean acceptability rating for sentences with and without verb movement to AGR over the adverb.

	level 1	level 2	level 3	Nn	Ns
[+] movement to AGR	3.09649	3.26912	3.89149	3.34368	3.13862
[-] movement to AGR	2.73570	3.02062	3.40091	2.67445	2.53940

Table 7.2 : Mean acceptability rating for the grammatical (NP[V+TNS+AGR]XP) and ungrammatical Complement sentences (NP[V+TNS]XP), (NP+V+XP), (NP+XP).

	level 1	level 2	level 3	Nn	Ns
NP[V+TNS+ AGR]XP	3.16007	3.34451	3.87012	3.17880	3.18334
NP[V+TNS]XP	2.92041	2.95132	3.43520	2.52334	2.25677
NP+V+XP	1.39268	1.54148	1.76206	1.20891	1.21633
NP + XP	3.06926	3.18140	3.52493	2.41465	2.07397

Table 7.3 : Mean preference for the grammatical complement sentence (NP[V+TNS+AGR]XP) over the ungrammatical sentences (NP[V+TNS]XP), (NP+V+XP), (NP+XP).

	level 1	level 2	level 3	Nn	Ns
Pref.over NP[V+TNS]XP	0.23966	0.39320	0.43492	0.65546	0.92657
Pref.over NP+V+XP	1.76739	1.80303	2.10805	1.96989	1.96702
Pref. over NP+XP	0.09081	0.16312	0.34519	0.76416	1.10937

Figure 7.1: Mean acceptability rating for sentences with and without verb movement to AGR over the adverb.

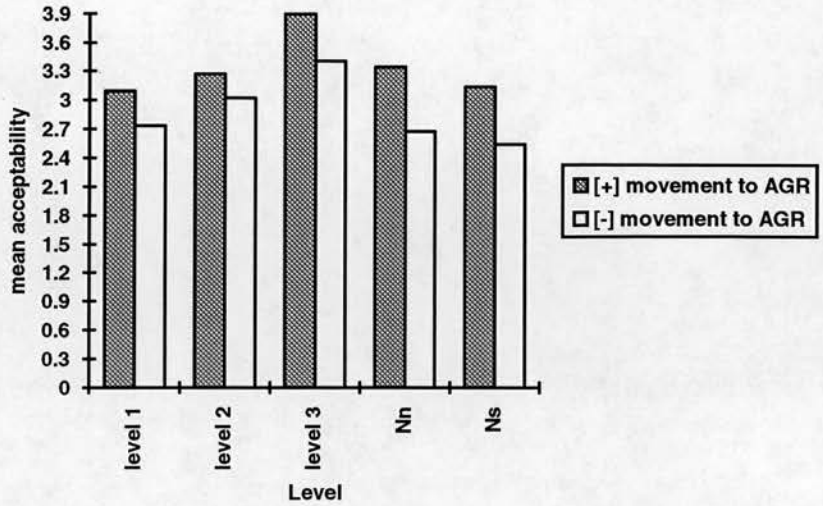


Figure 7.2 : Mean acceptability rating for the grammatical and ungrammatical Complement sentences.

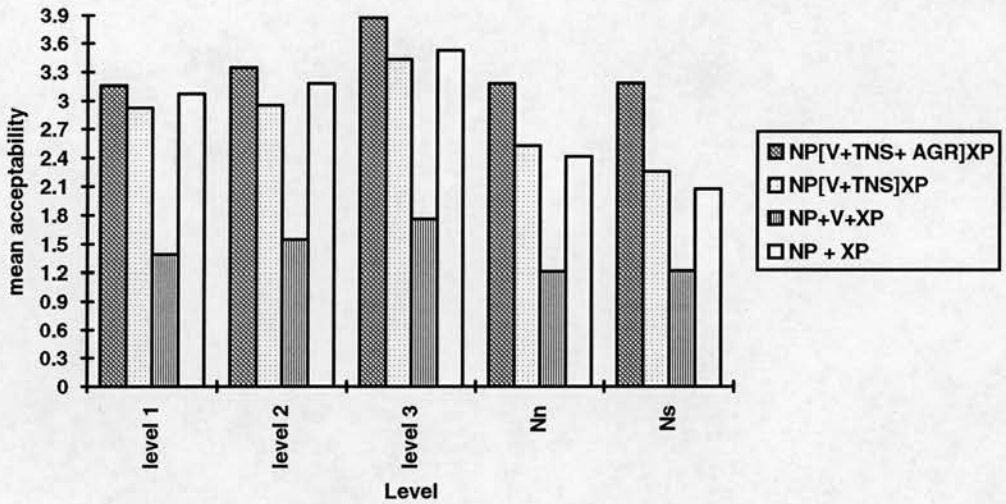


Figure 7.3: Mean preference for the grammatical complement sentence (NP[V+TNS+AGR]XP) over the ungrmmatical sentences (NP[V+TNS]XP), (NP+V+XP), (NP+XP).

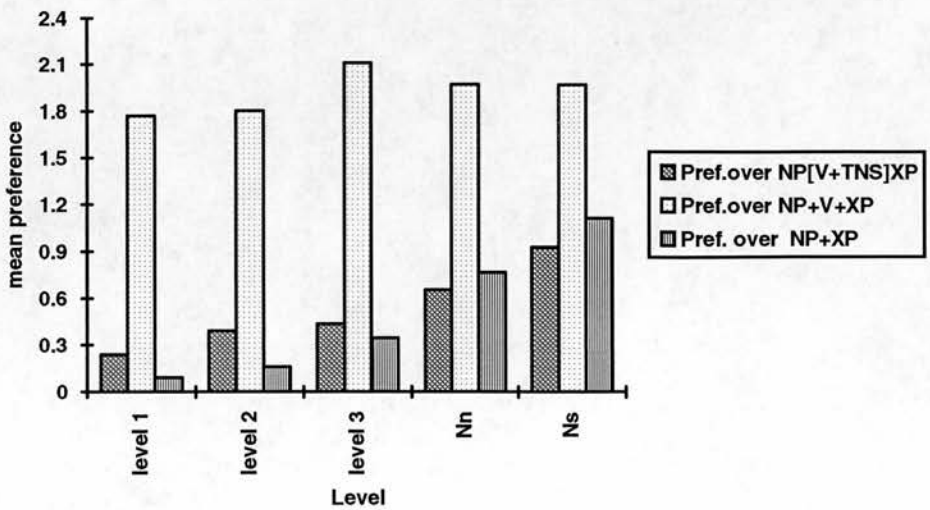


Table 7.4a: Overt and null referential and expletive subject with thematic verbs

	level 1	level 2	level 3	Nn	Ns
+ ref sub_thematic vb	3.11659	3.35806	3.89374	3.29406	3.16756
- ref sub_thematic vb	3.26078	3.27080	3.84341	3.00606	2.55832
+ exp sub_thematic vb	2.90644	3.06147	3.52658	3.16524	3.12770
- exp sub_thematic vb	2.77813	2.99340	3.20953	2.52849	2.0005

Table 7.4b: Overt and null referential and expletive subject with raising verbs

	level 1	level 2	level 3	Nn	Ns
+ ref sub_raising vb	3.15684	3.40240	3.72699	3.39646	3.17398
- ref sub_raising vb	3.03788	3.18801	3.67756	3.02511	2.74798
+ exp sub_raising vb	2.94300	3.16681	3.56890	3.27533	3.11328
- exp sub_raising vb	2.93788	3.08802	3.52457	2.77964	2.20473

Table 7.5: Mean preference for sentences with referential subjects over sentences with expletive subjects in sentences with thematic and raising verbs.

	level 1	level 2	level 3	Nn	Ns
main verb	0.6928	0.57399	1.00104	0.60639	0.59768
raising verb	0.51015	0.33558	0.31112	0.3666	0.60395

Figure 7.4a: Overt and null referential and expletive subjects with thematic verbs

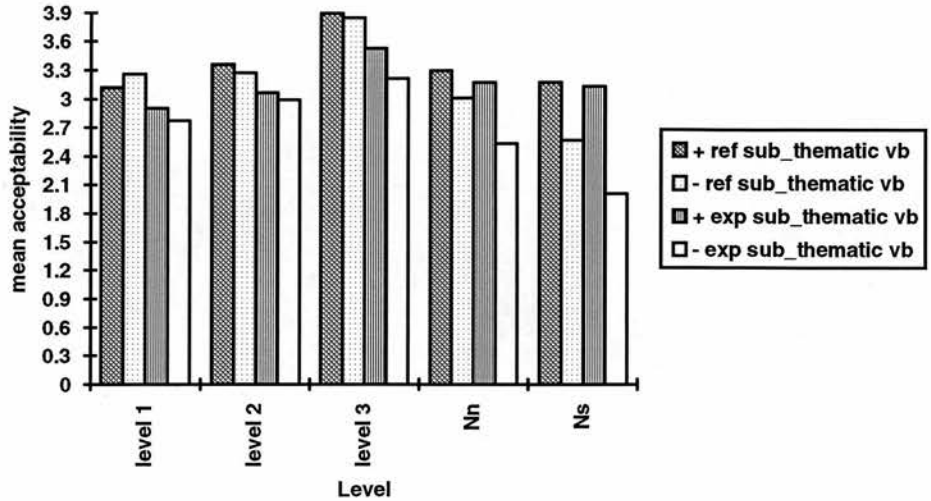


Figure 7.4b: Overt and null referential and expletive subjects with raising verbs

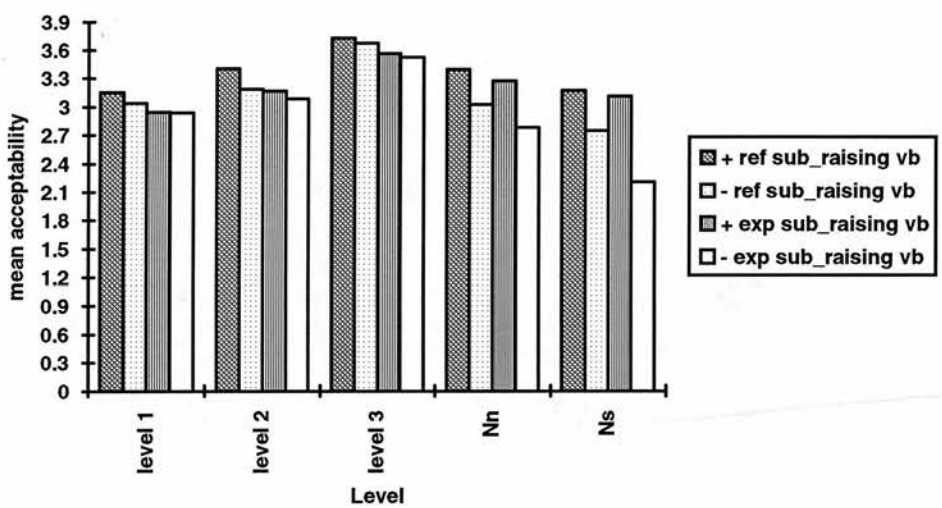


Figure 7.5: Mean preference for sentences with referential subjects over sentences with expletive subjects in sentences with thematic and raising verbs.

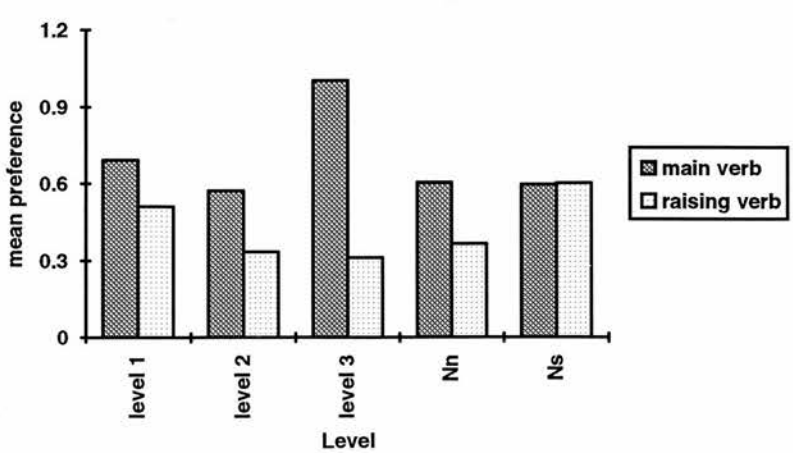


Table 7.6: Mean preference for sentences with overt subjects over null sentences with null subjects.

	level 1	level 2	level 3	Nn	Ns
ref sub_thematic vb	-0.14418	0.08726	0.05033	0.28800	0.60924
ref sub_raising vb	0.11896	0.21439	0.20242	0.51682	0.96926
exp sub_thematic vb	0.12832	0.06807	0.31705	0.63675	1.12712
exp sub_raising vb	0.00512	0.07880	0.04434	0.49569	0.90856

Table 7.7: Mean preference for sentences with referential subjects (overt and null) over sentences with expletive and subjects (overt and null) with thematic and raising verbs.

	level 1	level 2	level 3	Nn	Ns
Thematic vb:pref.overt referential subject	0.21015	0.29659	0.36716	0.12882	0.03986
Thematic vb:pref.null referential subject	0.48265	0.27740	0.63388	0.47757	0.55782
Raising vb:pref.overt referential subject	0.21383	0.23559	0.15809	0.12113	0.06070
Raising vb:pref.null referential subject	0.1	0.09989	0.15299	0.24547	0.54326

Table 7.6: Mean preference for sentences with overt subjects over null sentences with null subjects.

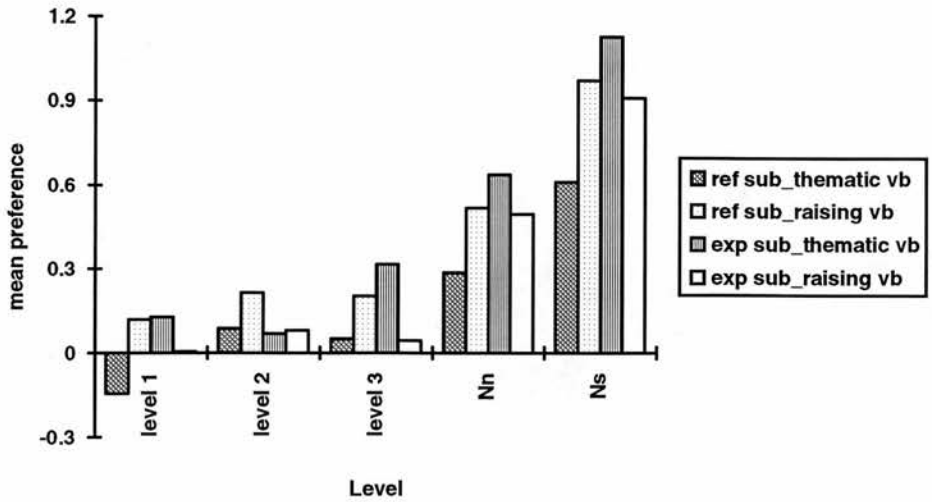


Figure 7.7: Mean preference for sentences with referential subjects (overt and null) over sentences with expletive and subjects (overt and null) with thematic and raising verbs.

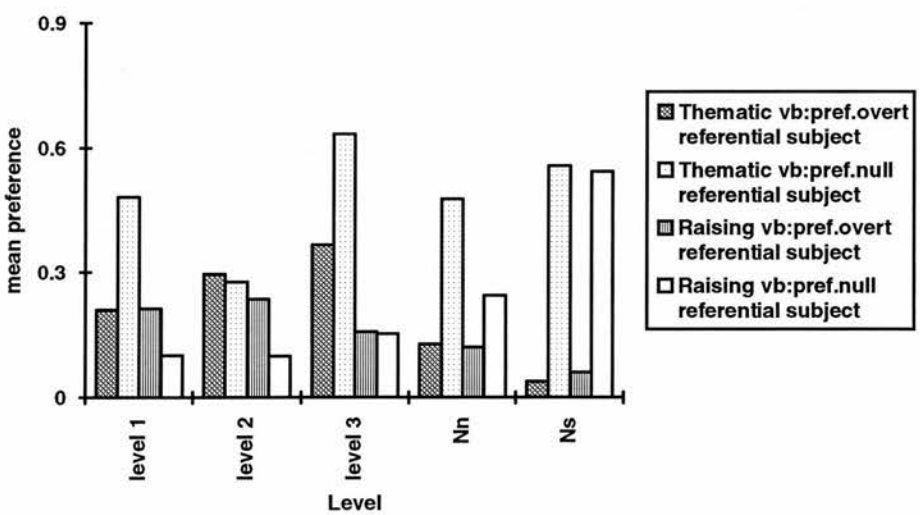


Figure 7.8: Mean acceptability rating for sentences with and without subject -verb agreement with singular and plural subjects.

	level 1	level 2	level 3	Nn	Ns
+ sub_vb agr:singular	3.24413	3.42984	3.77760	3.19125	3.14674
- sub_vb agr:singular	2.90603	3.20397	3.54447	2.62135	2.17152
+ sub_vb agr:plural	2.95237	3.25041	3.65447	3.23782	3.16403
- sub_vb agr:plural	2.85738	3.05376	3.52064	2.62281	2.49032

Figure 7.8: Mean acceptability rating for sentences with and without subject -verb agreement with singular and plural subjects.

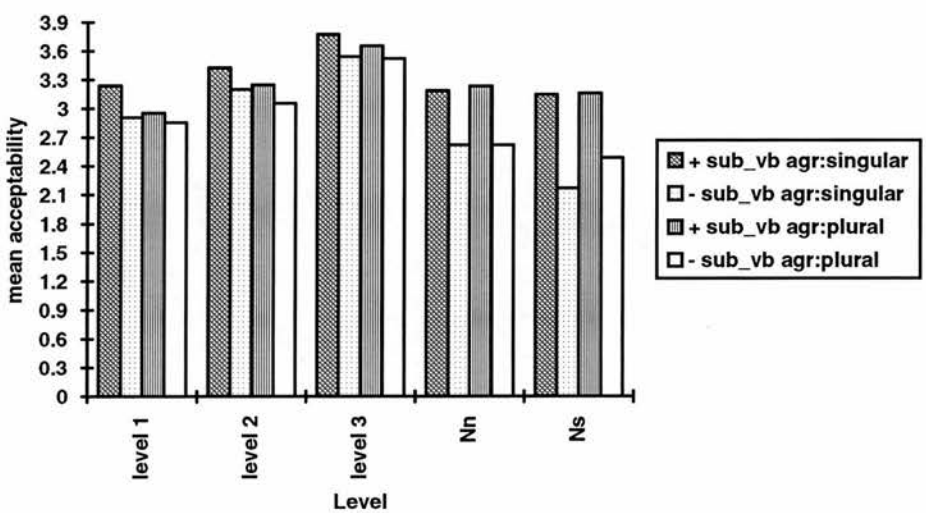


Table 7.9: Mean acceptability for sentences with and without subject-verb [+person] agreement marking on copula, auxiliary and thematic verbs.

	level 1	level 2	level 3	Nn	Ns
+ agr:copula	3.24413	3.42984	3.77760	3.19125	3.14674
- agr:copula	2.90603	3.20397	3.54447	2.58659	2.17152
+ agr:auxiliary	3.13741	3.22195	3.85642	3.20774	3.17005
- agr:auxiliary	2.92621	3.28764	3.66093	2.55786	2.21830
+ agr:thematic vb	3.20421	3.37690	3.85147	3.27336	3.08007
- agr:thematic vb	3.09804	3.14946	3.67370	2.84771	2.40248

Table 7.10: Mean preference for sentences with subject verb agreement marking with copula, auxiliary and thematic verbs.

	level 1	level 2	level 3	Nn	Ns
copula	0.33810	0.22587	0.23313	0.60466	0.97522
auxiliary	0.21121	-0.06569	0.19550	0.64988	0.95176
thematic	0.10617	0.22744	0.17777	0.42565	0.67760

Table 7.11: Mean preference for one verb type over another : preference for copula over thematic (main) verb, auxiliary over thematic verb and copula over auxiliary verb, in grammatical and ungrammatical sentences

	level 1	level 2	level 3	Nn	Ns
be_mv1	0.03992	0.05294	-0.07387	-0.08211	0.06666
aux_mv1	-0.06680	-0.15495	0.00495	-0.06562	0.08998
be_aux1	0.10672	0.20789	-0.07882	-0.01649	-0.02332
be_mv2	-0.19201	0.05450	-0.12923	-0.26112	-0.23096
aux_mv2	-0.17184	0.13818	-0.01277	-0.28985	-0.18418
be_aux2	0.31793	0.14220	0.11667	0.63339	0.92844

Figure 7.9: Mean acceptability for sentences with and without subject-verb [+person] agreement marking on copula, auxiliary and thematic verbs.

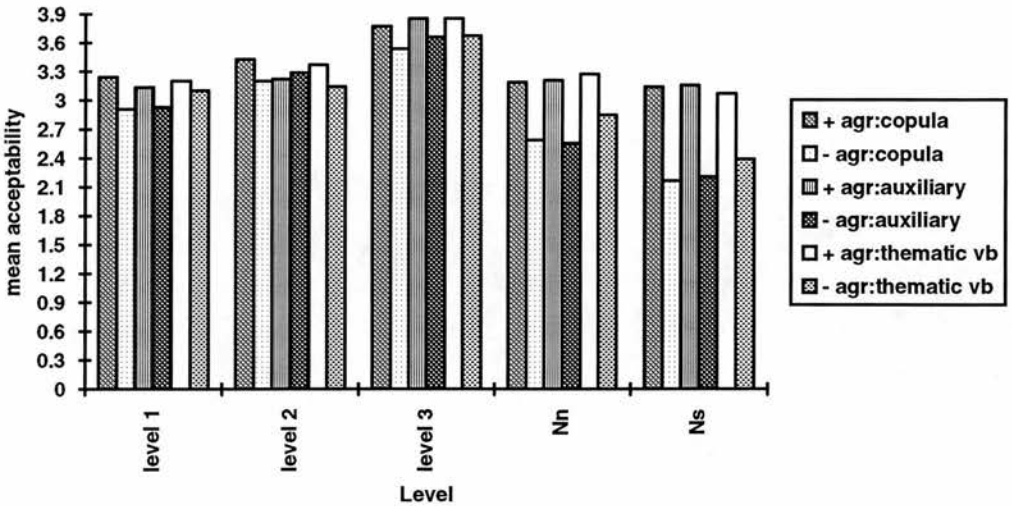
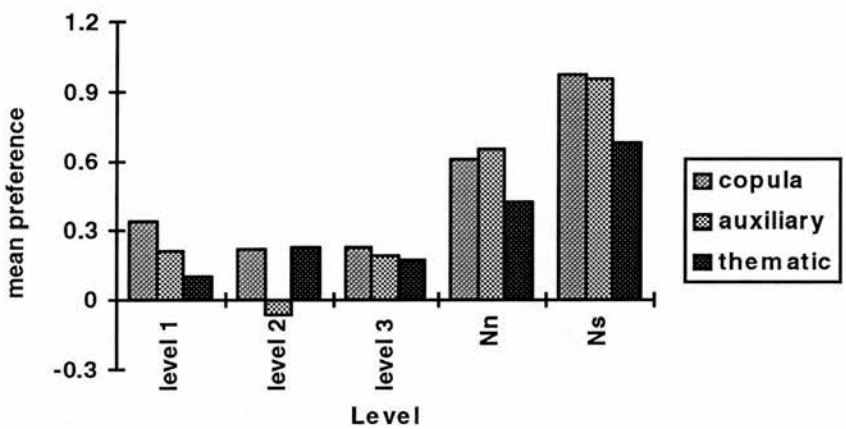


Figure 7.10 : Mean preference for sentences with subject verb agreement marking with copula, auxiliary and thematic verbs.



7.11: Mean preference for one verb type over another : preference for copula over thematic (main) verb, auxiliary over thematic verb and copula over auxiliary verb, in grammatical and ungrammatical sentences

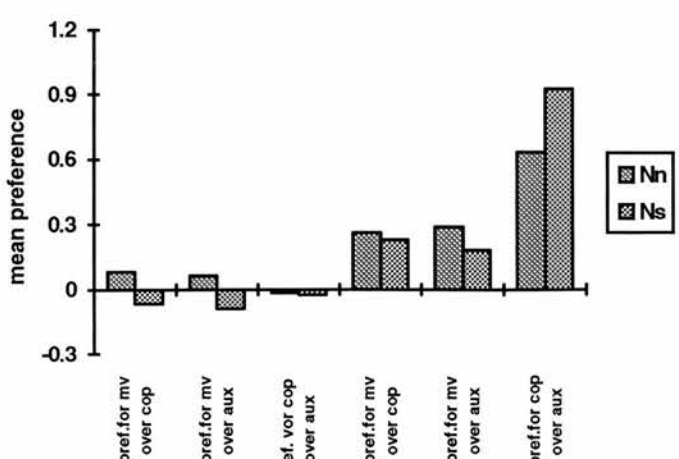


Table 8.1: 3ps.sg. -s as an AGR marker /TNS marker.

	level 1	level 2	level 3	Nn	Ns
-s as an AGR marker	2.81007	3.26502	3.73697	3.35146	3.17111
-s_as a TNS marker	2.87968	3.14457	3.74391	2.89999	2.58362

Figure 8.1: 3ps.sg. -s as an AGR marker /TNS marker.

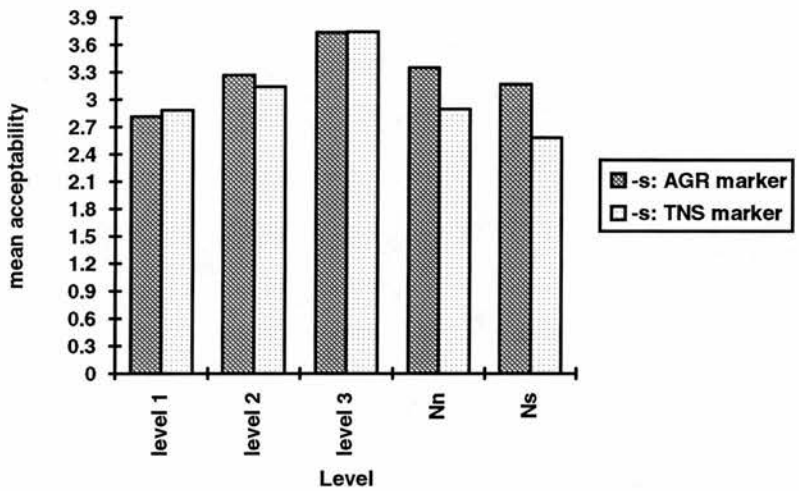


Table 8.2: Mean acceptability rating for sentences with [-TNS], [+TNS] and no TNS marker.

	level 1	level 2	level 3	Nn	Ns
[-TNS]: to	2.84372	2.94735	3.25092	2.74663	2.85101
[+TNS] will	3.12011	3.12615	3.73944	3.35297	2.76474
no TNS	2.83221	3.02717	3.39746	2.42902	1.98604

Table 8.3: Mean preference for sentences with [+TNS] and [-TNS] markers over sentences with no TNS marker.

	level 1	level 2	level 3	Nn	Ns
pref. for 'to'	0.01151	-0.07982	-0.14654	0.31761	0.86497
pref. for 'will'	0.28791	0.09898	0.34197	0.92396	0.77870

Figure 8.2: Mean acceptability rating for sentences with [-TNS], [+TNS] and no TNS marker.

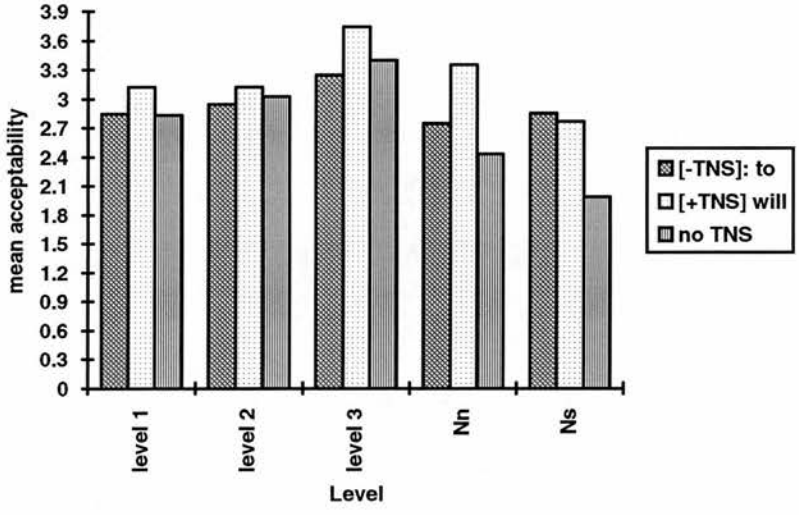


Figure 8.3: Mean preference for sentences with [+TNS] and [-TNS] markers over sentences with no TNS marker.

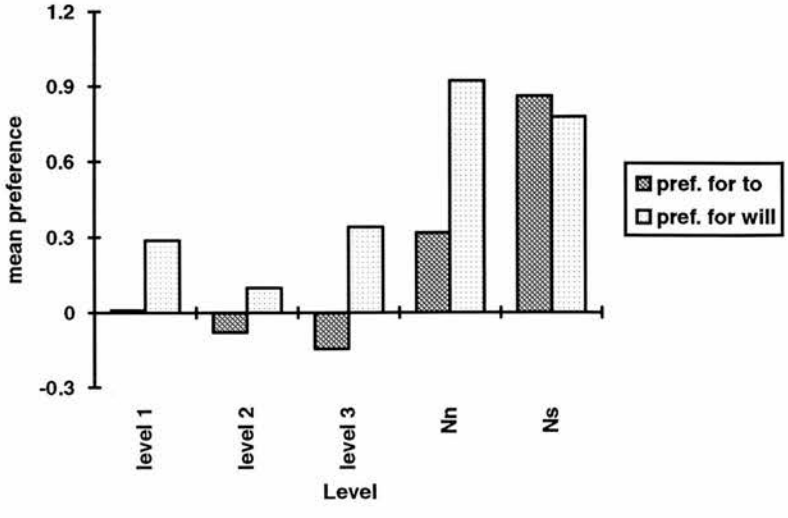


Table 8.4: Mean acceptability rating for sentences with and without [+ Past] tense: past regular, past irregular and copula

	level 1	level 2	level 3	Nn	Ns
[+] past regular	3.28323	3.35407	3.99365	3.40677	3.20621
[-] past regular	2.86063	2.79391	3.46353	2.62634	2.30125
[+] past irregular	3.28764	3.21512	3.95065	3.42455	3.14223
[-] past irregular	2.82378	2.97352	3.51700	2.85854	2.51925
[+] past copula	3.30644	3.20202	3.90828	3.39506	3.16874
[-] past copula	2.85273	2.84903	3.29275	2.42165	2.01808